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[ORIGINAL COMMUNICATION.]

TRIACANTHINE.

BY ABRAHAM L. METZ, PH.G.

SOME time ago, I received copies of the *Medical Record* (New York), in which there appeared an announcement of the discovery of a new local anæsthetic by Mr. Goodman, V.S., and Dr. Seward, with a report of the physiological results obtained by Drs. Claiborne and Knapp. This new alkaloid was stated to be derived from a Southern tree called the "Tear Blanket Tree," and growing abundantly in Louisiana. The alkaloid was called stenocarpine, because, as it was said, the plant resembled the *Acacia stenocarpa*. The description of the plant by Mr. Goodman corresponded almost exactly with *Gleditschia triacanthos* L., and as the story connected with the discovery produced some doubt in my mind, I determined to verify the statement. Accordingly I procured about 180 grammes of the leaves of *Gleditschia triacanthos*, through the kindness of Dr. Joor, Professor of Botany at Tulane University of this city. I examined the leaves for alkaloid, but the yield was almost infinitesimal, furnishing but a crystal or two, of a brownish color, as a result, which were used up in proving their alkaloidal character. I did not obtain enough to make any physiological experiments, but as I am working on a larger quantity, I shall probably be able to report in the near future.

It appears to me that the name stenocarpine—*if* this alkaloid is really derived from the before-mentioned source—is misleading and unscientific, and that the name of *triacanthine** should be substituted for it, in accordance with the custom to name alkaloids after the botanical name of the mother-plant. *The Gleditschia triacanthos* has several local names in this State. In the northern portion it is called *Thorn Tree*, while in this section (New Orleans) it is called *Sweet locust*. It grows abundantly in this State, commonly in the company of oaks and other trees, and forms a part of the forests that cover the most fertile soils. I have seen it stated that trials made with *Gleditschia triacanthos* in Philadelphia have given negative results. This may possibly be due to the fact that the quantity of leaves was not sufficient to produce a result, or perhaps the Northern tree does not yield an alkaloid, or the alkaloid obtained from it does not possess the remarkable properties ascribed to "stenocarpine."

In different parts of the United States the *Gleditschia triacanthos* is called, indifferently, *Sweet Locust* or *Honey Locust*.

The French of Illinois call it *Févier* (meaning bean tree), while the French of Louisiana call it *Pique Amaurette*.

The reason why the *Tree* is called the *Tear Blanket Tree* is because the legumes hang in bunches of 6 and 8, looking like strips of a torn blanket.† Thorn tree is a very appropriate name considering the length of the thorns. In situations which are favorable for the growth, as is observed in this State, the tree attains a very ample size. In St. Bernard Parish and other parts of this State, it attains a height frequently of 60 feet, while in the swamps lying back of this city, from 20 to 30 feet is the general average and it usually measures from 1½ to 2 feet in diameter. The sweet locust can be easily recognized by its bark, which at intervals of a few inches detaches itself laterally in plates 3 or 4 inches wide, and from 2 to 3 inches thick, and presents 3 or 4 crevices of inconsiderable depth, opening irregularly from the bottom to the top. The large thorns which cover the branches and frequently the trunk of young trees afford another very distinct character. These thorns are sometimes several inches long, ligneous, of a reddish color, and armed at some distance from the base with two secondary thorns, about one-half the size of the first.

The Choctaw Indians formerly utilized these thorns as *needles*. The leaves of the sweet locust are pinnate and compound, with small, oval, serrate, and sessile leaflets. This foliage is elegant, and of an agreeable tint, but is so thin that it scarcely obstructs the passage of the sunbeams. It is shed annually at the approach of winter, and therefore I do not understand what Dr. Seward means by winter and summer leaves. The flowers are small, of a greenish color, disposed in bunches, and are inconspicuous, and this accounts for the fact that Mr. Goodman has never seen the tree blossom. The fruit is in the form of flat, crooked pendulous pods, from 12 to 18 inches long, of a reddish-brown color. The pods contain brown, smooth, hard seeds, enveloped in a pulpy substance (something similar to Cassia fistula) which for a month after maturity is very sweet, and which then becomes extremely sour. Beer is sometimes made by fermenting this pulp when fresh, but the practice is by no means general.

The heart wood of the sweet locust nearly resembles that of the locust (*Robinia*), but its grain is coarser and its pores more open. In these respects it is more strikingly characterized even than the wood of the red oak. When perfectly seasoned it is extremely hard, and is used for making *cams* and *cogs* for wheels.

Dr. Jackson states in the *Medical News* that the *Gleditschia monosperma* (water-locust, or water-honey-locust) may possibly be the tree in question, and that it is common in Louisiana. The *Gleditschia monosperma*, however, is not as abundant here as one would suppose, as it is only found along the bayous near the sea-coast, but whether it contains an alkaloid remains yet to be determined.

NEW ORLEANS, LA., September 20th, 1887.

Shortly after the receipt of the preceding paper by Mr. Metz, the author sent us a copious supply of the leaves, pods, and spines of the "tear-blanket tree." These were recognized without any difficulty as derived from *Gleditschia triacanthos* L. In the *Medical Record* of October 1st, Dr. Claiborne publishes a paper in which he relates the steps he took to indentify the tree. Among others, from whom he received information, he mentions Dr. Jos. F. Joor, professor of botany at the Tulane University in New Orleans, who writes:

"The description of the tree as given by Mr. Goodman exactly tallies with that of the Gleditschia triacanthos. But the name "tear-blanket-tree" is locally applied to various prickly trees and shrubs, chiefly Texan and Arizonian, and one of these was the *Acacia* (Vachellia) *farnesiana* which grows along the Mississippi between Baton Rouge and New Orleans." He had never heard the name "tear-blanket" applied to any tree indigenous in Louisiana. The *Acacia farnesiana*, however, never grows over seven or eight feet high in Louisiana; it possesses *white* spines which are straight and *unbranched*, and bears a pod different from that of Gledistchia.

Dr. Claiborne points out a number of easily accessible localities, in New York, where the Gleditschia triacanthos may be found. We know a number of others, including some localities in Connecticut.

According to the information which Drs. Seward and Goodman must have furnished to Dr. Claiborne, the active principle was prepared on the banks of the Mississippi in the vicinity of the tree from which the first poultice was made. Dr. Seward and Mr. Goodman also informed him that the simplest domestic utensils were used in the extraction of the principle. And further, Mr. Goodman wrote him that "the new alkoloid is not, strictly speaking, a powder, but a semiliquid mass, of a greenish tint." Also, Dr. Seward informed him "that the leaves were treated before they became dry, and that he was not able to extract the alkaloid from them after they had dried. All of the solution of the alkoloid at present possessed was made before leaving Louisiana." Dr. Claiborne reports further results obtained with the alkoloid.

These results show conclusively that the solution used by him—as well as by others—is undoubtedly possessed of remarkable powers. He states, for instance, that he had frequently applied cocaine in the same way as the new alkaloid, but in stronger solutions, and that he can safely say that the anæsthetic effect of gleditschine is decidedly more profound and lasting than that of cocaine.

It seems to us that the questions necessary to be fully answered, before the claims of the new alkaloid are recognized, are the following:

1. Does the Gleditschia triacanthos, in its fresh condition, contain a proximate principle having the properties claimed for "stenocarpine" or "gleditschine?"

2. If northern plants do not contain this (supposing it should be found absent in those growing about here), is it present in southern plants?

3. If it *is* present, is it lost or dissipated on drying?

4. If it is not obtainable from the alleged source, in

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* The name *triacanthine* appears to us preferable to *gleditschine*, which latter has recently been proposed in place of stenocarpine, for the reason that there are various species of Gleditschia which may possibly, each, contain a different alkaloid. By naming these after the several species' names, confusion will be avoided.—ED. AM. DRUGG.

† We should have supposed that it was so called because it is so very apt to "tear" the "blankets" and other tearable articles of ranchmen, cowboys, etc., etc.—ED. AM. DR.

any, part of the country, would the discoverer point out the exact locality and state details of process by which it was obtained, so as to exclude the possibility that portions of some other plant may have become accidentally mixed with the lot from which the alkaloid was prepared?

5. Is it possible to prepare a compound of one or more alkaloids, obtained from other sources, so that the anæsthetic and other effects of one or more of them are increased or modified in such a manner as to show effects which would not be obtainable from any single constituent?

Saccharin and its Uses in Pharmacy and Medicine.

THE market has at last been supplied with the first shipments of this new chemical, the extraordinary properties of which had for some time created quite a furore in certain lines of business, as it was anticipated to bring about a sort of revolution in various technical products. It is now within the power of any person to test the properties and capabilities of the substance for himself. We have received one of the first lots that have reached this country, and find our anticipations, in general, realized, with the single exception that we do not regard its sweetening power so extraordinary as was at first stated. It is, indeed, the sweetest substance known to us, and it is capable of imparting a sweet taste to a large bulk of insipid material, as well as of hiding the taste of a considerable amount of bitter material; but the proportion required in either case is considerably larger than has been reported. We are not yet prepared to give exact figures, as we have not made systematic experiments; but such as we have made, for instance, those mentioned below, have convinced us that we are right. Be this as it may, there is no doubt that the new substance is destined to play an important rôle in the arts and in medicine.

From a pamphlet* recently published on the subject we extract the following, which will be of interest to our readers:

Saccharin, or Anhydro-Orthosulphamine-Benzoic Acid, was first brought to the attention of the medical profession in 1885, and though it was then available only in small specimens, yet it at once attracted attention through its remarkable sweetness, which suggested its applicability as a corrigent for bad-tasting medicines. This is now amply confirmed by the fact that regular compounds of saccharin with alkaloids are now available, in which the bitter taste of the latter is materially diminished. It has been found that, in most cases, equal parts of the bitter alkaloid and of saccharin are sufficient to produce a product of a fairly good taste; only in a few cases is an excess of saccharin necessary.

One of the most valuable medicinal uses of saccharin is its employment in diabetes mellitus, not as a remedy, but as a sweetening agent for food. Not being a carbohydrate like sugar, it does not affect the digestive process, and passes out through the urine without change. By means of it, both solid and liquid food prepared for diabetic patients may be agreeably sweetened and rendered palatable.

Saccharin is also likely to be found a serviceable substitute of sugar for all persons inclined to adiposity. And, owing to its antifermentative properties, it will be found valuable as a substitute for sugar in food prepared for patients affected with gastric troubles.

Another useful application of saccharin, internally, can be made in cases where the bladder is in an inflamed or irritated condition, in which cases the urine soon undergoes the ammoniacal fermentation. Here it may be given either in form of beverages, or it may be directly injected into the bladder. It will also be found that an addition of saccharin to urethral injections will prevent the formation of fermentative fungi, without in the least irritating the mucous membrane.

As an addition to preparations for preserving the teeth, saccharin will be found valuable, by improving the taste of these compounds without introducing any substance which might set up a fermentative process.

Finally, saccharin is recommended as an addition to food for infants or convalescent patients, for the same reason which has been mentioned before, namely, its incapability of causing irritation by fermentative action.

Mr. F. Lutze, of Berlin, has made experiments to ascertain the pharmaceutical capabilities of saccharin, and proposes to prepare from it, in the first place, two standard dilutions, one of them a *liquid* and the other a *solid*, which are afterwards to be used as bases for other preparations. The component parts of the two dilutions are respectively:

1. *Solution of Saccharin.*

Saccharin
Diluted Alcohol

of such a strength that 1 gramme of the solution is equivalent, in sweetening power, to 15 grammes of syrup.

2. *Mixture of Saccharin.*

Saccharin
Mannite

of such a strength that 1 gramme of the mixture is equivalent in sweetening power, to 10 grammes of sugar.

Note of Ed. Am. Drugg.—The author does not give the proportions for preparing the above-mentioned preparations. We find that when 1 Gm. of saccharin is dissolved in 100 C.c. of diluted alcohol, it requires about 8 C.c. of this solution to impart to plain water approximately the same degree of sweetness (though with a peculiar secondary taste) as is imparted to the same amount of water by 15 Gm. of syrup, with addition of as much diluted alcohol as had been introduced in the first-mentioned solution. In a comparative trial, diluted alcohol must, of course, be added to the syrup solution as well, in order that the difference in taste may be due only to saccharine matter. At the rate mentioned, 0.08 Gm. of saccharin would be about equivalent to 15 Gm. of syrup or to 9.75 Gm. of sugar; this would be a relation of about 1 part of saccharin to 122 parts of sugar. Of course, in a trial of this kind, individual judgment as to degree of sweetness may vary. According to the preceding, it is impossible to make a solution of saccharin in diluted alcohol of such a strength that 1 gramme of it shall correspond to 15 grammes of syrup. If this were possible, then 1 gramme of the dilute alcoholic solution would have to contain 0.08 Gm. of saccharin, which would be a solution of about 1 in 11.5. In reality, however, 1 part of saccharin requires for solution of diluted alcohol (made by mixing equal volumes of 94% alcohol and water) about 80 parts. Of 93% alcohol itself, it requires about 33 parts. Hence it is impossible to prepare a solution of the kind mentioned by the author, even by using pure alcohol as a solvent.

Assuming that our estimate is approximately correct, viz., that 1 part of saccharin is equivalent to about 122 parts of sugar, then the mixture of saccharin may be made by mixing saccharin 8 parts and mannite 92 parts. One gramme of this may then be assumed to be equivalent to 9.75 Gm. (or practically, 10 Gm.) of sugar. Since the taste of the saccharin preparations, however, is not absolutely identical in character with sugar preparations, and there is particularly to be noticed a peculiar, almost irritating, but faint after-taste, it is not so easy to establish a rate of dilution which would be regarded by everybody else as uniform with a certain strength of a sugar preparation. In the present case, we have purposely given only our own *individual* impression, without consulting anybody else's judgment, in order that we may see how far we may differ from others who make the same experiments.

P. S.—On repeating the experiment some days later, we are inclined to believe that we have still overrated the sweetening power of the substance; we think that the equivalent of 1 part of saccharin = 122 of sugar is too high. It is more probably 1 = 100.

Mr. F. Lutze gives a number of examples of prescriptions in which the solution and mixture above described are employed as corrigents. But as he does not give the exact strength of his basic solution and mixture, and as we found it impossible to get the saccharin in a sufficiently concentrated solution, such as he pretends to use, we refrain from publishing the formulæ as being practically useless. It will, however, be highly useful to institute a series of experiments in the same direction as those made by Mr. Lutze, in order that the true capabilities of saccharin in pharmacy may be ascertained independent of any secret or proprietary intermediate preparation. Mr. Lutz uses it as a corrigent for quinine, chloral, salicylate of sodium, hydrochloric acid, kousso, rhubarb, compound liquorice powder (the sugar being replaced by the "saccharin mixture") tincture of strophanthus, compound tincture of cinchona, tincture of valerian, solution of acetate of iron, wine of cinchona, of coca, etc., cod-liver oil, castor oil, balsam of copaiba, oleoresin of male fern, extract of cascara sagrada, etc.

* "Saccharin und Saccharin-Präparate." Fahlberg, List & Co., Saccharin Fabrik; Salbke a. E. (Ausstellung der 60. Versammlung deutscher Naturforscher und Aerzte in Wiesbaden, 15.-24. September 1887). Pamphlet placed at our disposal by Messrs. Lutz & Movius, 15 Warren St., New York, Sole Agents for Saccharin.

VANILLIN.*

BY CLAY W. HOLMES, ELMIRA, N. Y.

A REPLY to this query seemed at first glance to be quite easy and practical; the effort to make a thorough and satisfactory examination from which facts might be stated as absolute, has proven quite another thing. If this article shall go beyond the scope of the question, as intended by the committee, a desire to ascertain the actual value of vanillin may, perhaps, be a sufficient excuse.

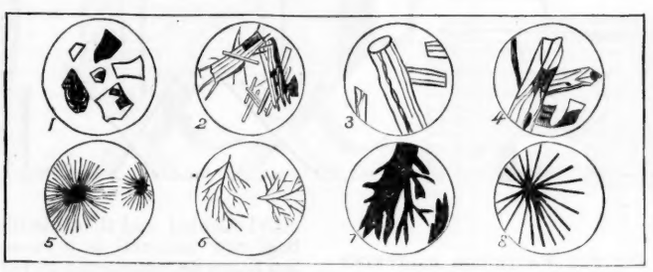
Of samples, two manufactures only could be obtained, which are designated as "Paris," made by Haarman & Reimer, the original inventors, and "American," claimed to be made and largely advertised by an American extract manufacturer. As it is claimed by both manufacturers that 1 ounce of vanillin will do the work of from 40 to 50 ounces of the best vanilla bean, it seemed advisable to prepare samples of various strength. I have therefore made solutions representing from 8 to 48 ounces of bean, as shown in the following table of samples, all of which are based upon the relative working formula of 1 ounce of vanilla bean to 1 pound of menstruum, this being the average strength of the extract ordinarily sold:

1.	Vanillin,	Paris,		representing	1	to 48	ounces	vanilla bean.
2.	"	"		"	1	" 24	"	" "
3.	"	"		"	1	" 16	"	" "
4.	"	"		"	1	" 8	"	" "
5.	Vanillin,	American,		"	1	" 48	"	" "
6.	"	"		"	1	" 24	"	" "
7.	"	"		"	1	" 16	"	" "
8.	"	"	No. 2,	"	1	" 16	"	" "

Duplicates of each of the above marked "A" are colored with caramel.

9. Mexican Vanilla, 1 oz.
10. Coumarin, crude, 1 oz., representing 16 oz. Tonca bean.

As the American manufacturer in all of his advertisements insists that the solution of vanillin must be colored with burned sugar "before tasting or using the extract," I have divided all samples and colored one portion of each. I obtained a sample of crude coumarin, from which a solution, representing 1 ounce to 16 of Tonca bean, was prepared. An extract was also made from the best Mexican vanilla. The samples are before you for examination. Finding the sense of smell very unreliable in my own efforts with so many samples, I will leave you to determine for yourselves the sensible qualities as thus shown, and delineate the results of actual test so far as I have been able to prove them.



1. Crude Coumarin. 2. True Vanilla Crystals. 3. Paris Vanillin. 4. American Vanillin No. 2. 5. True Vanillin, crystallized on slide, from alcoholic solution. 6. Crude Coumarin, crystallized in same manner. 7. Synthetic Coumarin, crystallized in same manner. 8. American Vanillin No. 2, crystallized in same manner.

With the aid of a competent judge, I examined samples Nos. 2, 3, 5, 6, 7, 5A, and 7A at a soda fountain in the following manner: To ½ ounce of simple syrup, in eight clean soda glasses, 5 drops of each sample was added, and about 1 ounce of carbonated water injected from the small draft tube. These mixtures tasted and compared carefully gave the following sensible results:

Nos. 1 and 5 did not have any apparent vanilla taste or odor.

Nos. 2 and 6 gave a vanilla taste, not very decided; a faint odor was perceptible.

Nos. 3 and 7 gave a decided vanilla flavor, pleasant, but lacking the fulness of true vanilla. The odor was quite marked.

Nos. 5A and 7A did not differ from the uncolored samples except in the odor, which was very marked.

As between the two samples, the Paris vanillin seemed to give the most satisfactory results.

From the results of the tests, as given, the writer is forced to acknowledge that vanillin will produce an artificial extract which resembles vanilla, but not of the strength indicated by the manufacturers. When it is used in the ratio of 1 ounce to 1 pound of good vanilla bean, no one could readily recognize the substitution, and the relative values would be equal. Commercially there is quite a variance. The Paris vanillin costs about $5.50 per ounce, the American $12, and a good 8-inch extract bean from $10 to $11 per pound at present market rates.

Desiring to know what resemblance the microscope might show between vanilla and vanillin, but being unable, from pressure of official State work, to enter into this line of investigation, I solicited the aid of my friend, Dr. R. G. Eccles, of Brooklyn, to whom I am indebted for the facts given. Specimens of all samples used in making the solutions were submitted, also some true vanilla crystals and synthetic coumarin. To better illustrate the resemblance existing, the doctor drew some off-hand sketches, without any attempt at mathematical accuracy, but sufficiently characteristic to convey to the mind a proper conception of the appearance when magnified. The illustration given will aid the description, and is a photographic reproduction of the pen sketches. The samples herewith submitted are those from which the specimens were taken. Sketches Nos. 1 to 4 represent the natural condition. Nos. 5 to 8 were first dissolved in alcohol and then allowed to evaporate and crystallize spontaneously on a slide. The result of this examination shows some resemblance between the true vanilla crystals and vanillin. I had suspected the presence of crude coumarin as an admixture in at least one sample (American No. 2), but No. 8 disproves this, unless the coumarin was amorphous in the process of re-crystallization.

You will note, on examining the samples, that the American vanillin No. 1 resembles very closely the Paris, the only difference cognizant to the naked eye being a yellowish tinge in the American, while the Paris is white. American No. 2 has an entirely different appearance. This is much darker, and looks like a mechanical admixture of Paris vanillin and crude coumarin. Both American samples are from the same manufacturer, No. 1 being sent to a druggist on regular order, and No. 2 obtained as a sample direct from the manufacturer.

Both manufacturers claim that vanillin is the aromatic crystalline principle of the vanilla bean existing in the amount of 2 per cent. The American manufacturer asserts that for the last past year he has been buying large quantities of vanilla beans in Mexico and separating the crystals from the bean, "thus avoiding the heavy custom-house duty and other expenses." This probably accounts for the difference in price. The Paris vanillin costs $5.50 per ounce; the American (avoiding the duty?), $12 per ounce. Perhaps he is not aware that vanillas have been for a long time free from duty. The assertion would convey the inference that he bought green beans, or, if cured ones, only the cheaper grades. The fact is that green beans possess no crystals (vanillic acid), and are as devoid of flavor as a Lima bean. The process of curing develops the peculiar flavor which is principally, but not entirely, dependent upon the vanillic acid generated, and unless the "vanillero" be skilful the beans will be rank and the cured bean worthless. It is also true that the vanillic acid or crystals do not form to any appreciable extent except upon the finer grades of vanillas, which indicates that it is not present even to the extent of two per cent, except in fine grade beans. It is also true that a certain amount of the natural oil of the vanilla adheres to the crystals which cannot be separated. This is shown by putting the crystal on paper. Oil will be observed to be distinctly visible. Neither sample of vanillin exhibits anything of an oily appearance. True vanilla crystals are slowly soluble in alcohol, owing to the oil present. Vanillin is dissolved almost instantly. These facts being true, does the reasonable reader suppose that any man can take 3 pounds of good vanilla beans and extract 1 ounce of vanillin at either of the prices named, or at any price? Or is there any intelligent pharmacist who for a moment supposes that either manufacturer makes vanillin from vanilla bean? Is it practical to believe that an extract or chemical principle can be extracted from any substance and be sold for one-third the cost of the material used?

So far as the writer believes or can learn, vanillin is made from either pine cones or from eugenol, the active principle of cloves, and therefore is a substitute for vanilla. If offered to the trade as a substitute, and sold to the consumer as a solution of vanillin without color, the writer has nothing further to say. Let those buy who wish. If offered by any one as the active principle of and obtained from the vanilla bean, I think in the State of New York, at least, the dealer so offering would be violating the food law and be liable. While vanillin is a clever substitute for the true bean, no reputable pharmacist should for a moment attempt to offer a preparation of it for vanilla.

* Paper read at the Annual Meeting of the Amer. Pharm. Assoc. in Cincinnati. Reply to Query No. 2. Prepare extracts of Vanilla from Vanillin, and compare them to similar preparations from the natural drug.

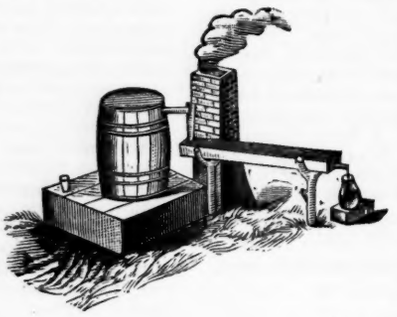
Postage-Stamp Mucilage is said to consist of 2 drachms of starch, 1 ounce of white sugar, 2 drachms of gum arabic, and sufficient water. Dissolve the gum, add the sugar and starch, and boil until the starch is cooked.

HOME-MADE PHARMACEUTICAL APPLIANCES.*

BY CHARLES K. GALLAGHER, WASHINGTON, N. C.

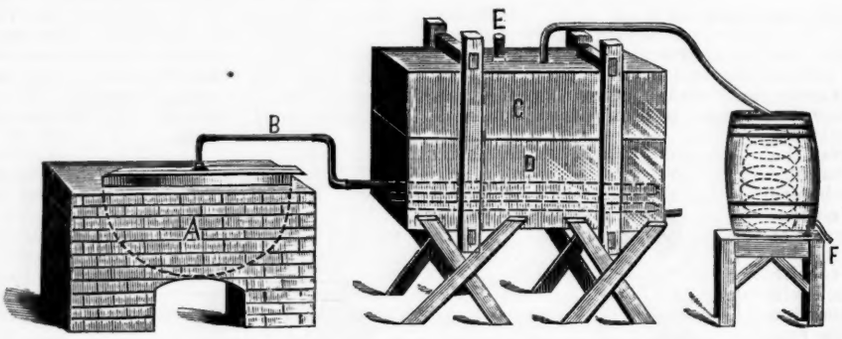
STILL FOR DISTILLATION OF OIL OF SASSAFRAS, OIL PENNYROYAL, OIL PEPPERMINT, ETC.

A TRENCH is dug in the ground, ending in a chimney. A box with sheet-iron bottom, closed top, and auger hole to introduce water in the top is surmounted by a barrel, which is connected (by an elbow of wood bored out with an auger) to a tin pipe lying in a trough of cold water, which is the condenser. The outfit costs about $10, and nets a profit of about $3 a day. The roots are dug, washed, bruised, and chopped into short pieces and placed in the barrel. Water is introduced into the steamer or box, all the joints luted tight with clay, and fire applied in the trench. The steam passes through auger holes in top of box and bottom of barrel, and is condensed and passes into the receiver with a portion of oil, which is decanted from above or the water drawn off below [or *vice versa*, according as the oil is heavier or lighter than water.]



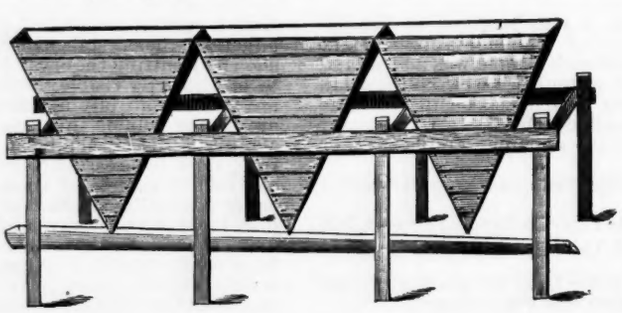
APPARATUS FOR MAKING ALCOHOL FOR HOSPITAL USE DURING THE CIVIL WAR.

A, ordinary farm boiler or kettle, with iron lid securely bolted on; B, steam-pipe ending in a coil within trough; C, D, two troughs made of gum logs, one inverted over the other, securely luted tight, and fastened together by clamps and wedges. The beer to be distilled was introduced at E, and the opening closed with a plug. The distillate — "low wines" — were collected at F, and redistilled from a set of similar troughs not shown in above figure, and heated by a continuation of the steam coil from D.



CONFEDERATE APPARATUS FOR MANUFACTURING SALTPETER FOR AMMUNITION.

Any convenient number of percolators, made of rough boards, arranged over a trough after the style of the old-fashioned "lye stand," similar to adjoining figure. Into these was placed the earth scraped from around old tobacco barns, from under kitchens and smoke-houses. Then water or water and urine was poured upon it until thoroughly leached or exhausted. The percolate was collected in a receptacle and evaporated, the salt redissolved, filtered, again evaporated, and crystallized from the mother water.



Specific Gravity of Lime-Water.

J. A. WANKLYN's determination of the specific gravity (1.00235) of lime-water containing 1.334 grammes of calcium oxide per liter, shows that when 1.344 grammes of lime was dissolved in 1001 C.c. of water, the substance contracted to 1 liter.—*Chem. News* and *J. Chem. Soc.*

Ice Poultice.

SPREAD a layer of linseed meal three-fourths of an inch deep on a cloth of proper size, and put pieces of ice the size of a marble on the meal at intervals of an inch; then sprinkle lightly with the meal, cover with a cloth and turn over the edges: apply the thick surface to the skin. The meal protects the skin and excludes the air from the ice, thus preventing melting.—*Chem. and Drugg.*

* Papers read at the Annual Meeting of the Amer. Pharm. Assoc., in Cincinnati.

Opium in China.

IN the course of a journey through Manchuria, Mr. H. E. M. James, of the Bombay Civil Service, noticed that the opium poppy grows luxuriantly in that part of China, and that the native-grown opium had there almost completely displaced the Indian drug. The imports of the latter into Manchuria amounted to £572,000 in the year 1866, but in 1885 to only £31,300. Opium is grown not only for local consumption, but for distribution in parts of Northern and Central China. The taste for Indian opium is disappearing in favor of the home article, and now that the Che-foo Convention has come into force, and has in fact, though perhaps not in name, imposed an additional duty on the Indian article, it is almost safe to prophesy that in a short time the Indian trade will be seriously affected, and the use of the Indian drug will be confined to a few wealthy *gourmets*.

Mr. James further remarks that he can only remember meeting two persons who had ruined themselves in health by smoking opium, and that some experienced foreigners whom he met were of opinion that, taken in moderation, on a full stomach, it is no worse than tobacco.—After *Pharm. Journal.*

Iodoform and Bromoform.

MOST of the methods given in text-books for the preparation of bromoform yield either none of that compound or very little.

Methyl alcohol, under the action of alkali and bromine, gives no bromoform unless the alcohol be impure, formic acid being obtained.

Ethyl alcohol, under the same conditions, gives acetic acid. If, however, the compound analogous to bleaching powder is prepared with bromine and milk of lime, this, when heated with ethyl alcohol and then distilled, gives bromoform. The best raw material is acetone. This, when mixed with ten times its weight of a 20-per-cent soda solution heated at 50°, and treated with bromine in the smallest possible portions at a time, gives a yield of 81 per cent of the theoretical amount of bromoform. The process goes quietly, but lasts for some days. Caustic alkali in the place of the carbonate accelerates the process, but the yield falls to 62.5 per cent. Acetaldehyde in presence of alkali and bromine gives no bromoform. Anhydrous aldehyde under the action of bromine gives as one product a substance having the empirical formula $C_4H_5BrO_2$, but whose constitution is quite uncertain; when heated with aqueous alkalies it yields bromoform and what seems to be a true resin.

Iodoform.—Alcohol containing from 20 to 25 per cent aldehyde is the most suitable raw material for the production of this compound. It is mixed with ten times its weight of soda solution, iodine is added, and the mixture stirred round from time to time; the iodoform gradually and quietly separates out. The process is completed in the cold. Some sodium iodide may be added with advantage, to increase the solubility of the iodine.

As by-product, sodium iodide nearly free from iodate is obtained.—F. GUNTHER, in *Arch. d. Pharm.* and *Journ. Chem. Soc.*

Antifebrin in Epilepsy.

ACCORDING to Prof. Bartholow, physiological and clinical observations demonstrate the efficiency of antifebrin in epilepsy, where there is a slow, feeble circulation, as seen by retinal examinations. Doses of 3 grains per day will usually suffice.—*Coll. and Clin. Rec.* and *Am. J. Ph.*

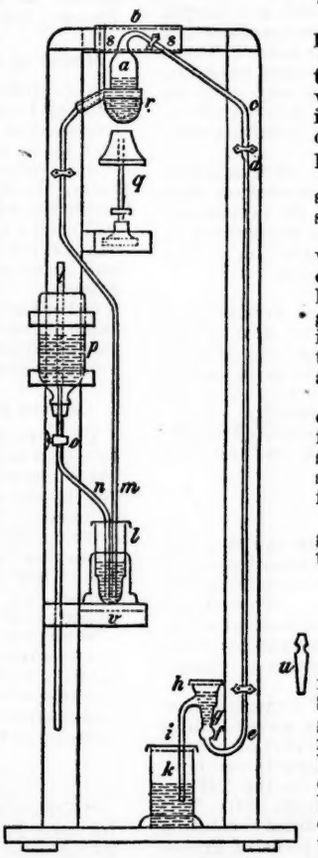
DISTILLATION OF MERCURY IN VACUO.

THE apparatus here described has been devised by B. Nebel for the purpose of distilling mercury in vacuo, an operation which is often rendered necessary when it is required to remove non-volatile metals from mercury.

Upon a firmly constructed wooden frame, the glass apparatus *m*, *a*, *c*, *g*, *h*, consisting of *one* piece, is securely fastened. The tube *m*, as well as the tube *b c d*, have a diameter of 6.5 millimeters and the former (*m*) connects with a sort of retort *a* of 4.2 centimeters in diameter and 9.5 centimeters in length. From the neck of this, the tube *c* curves down to a sort of pipe-bowl from the upper portion of which descends a tube *h*, substantially as shown in the cut. The globular expansion *f* has a diameter of 15 millimeters, and the ground neck at *g* a length of 33 millimeters. A hollow stop-cock *u* fits accurately with this ground neck.

A strong bottle *p* serves as a receptacle for the mercury that is to be distilled, and this receptacle or reservoir may at any time be detached and refilled without interfering with the operation. At *l* is an intermediate glass-vessel, 11 centimeters long, 4.6 cm. wide above, and 2.9 cm. below, sitting in a wooden foot. Both the flask *p* and the vessel *l* may be adjusted in height along the left upright. The adjustment should be made so that the end of the tube *n* stands about 2 or 3 centimeters above the end of the tube *m*. The retort *a* is surrounded at its lower half with asbestos and wire gauze, and the upper part of the frame, at *b*, is likewise protected from charring by asbestos.

When the apparatus is started, the stop-cock *o* is opened until the vessel *l* is partly filled with mercury. The stopper *u* having been inserted in the neck *g*, its upper end is connected by means of stout rubber-tubing with the exhaust pump, until the mercury in *l* rises into the retort *a* and fills the latter about one-half. The flame of the Bunsen burner *q* having been ignited, distillation will commence after a while, and while it is going on, the exhaust pump (or filter pump) is kept going. As soon as the bulb *f*, however, has become filled with distilled mercury, the pump may be dispensed with. The stopper *u* may, therefore, be withdrawn, but this should be done quite slowly and gradually. As the operation proceeds, the distilled mercury will rise higher in the bowl *g*, until it finally flows off through the lateral tube *h*. From this time on the apparatus may be kept constantly going; without interruption, all that is necessary being to replenish the reservoir *p*. The stop-cock *o* is only opened when the vessel *l* is to be refilled.—*Chem. Centralbl.*



Nebel's apparatus for distilling mercury.

Salol in Bowel Complaints.

DR. GOELET, of New York, speaking of the use of salol in the intestinal disorders of children, says:

While the adult dose is ten grains, the dose is much larger in proportion with children, and varies very considerably with the age. For a child six months old or under, the dose is half a grain every two hours. From seven to ten months old, the dose may be from one-half to three-quarters to one grain, according to the severity of the symptoms and the strength of the child. A child one year old may be given from a grain to a grain and a half, according to the severity of the symptoms. A child fifteen to eighteen months old may take a grain and a half to two grains. At the age of two years the dose would be two grains. For three years of age, the dose would still be two grains to two grains and a half. Children of four years would require only two and a half to three grains, and those of five to six years would require only three or three and a half grains. And from this age to ten it is seldom necessary to give more than five grains. It is always given to commence with every two hours, and as the symptoms are relieved the interval is lengthened to three or four hours. As in the first case, I sometimes give it three or four times a day for twenty-four or forty-eight hours after the subsidence of the trouble.

The application of salol in bowel complaints is very extensive. I have used it in all with the same pronounced success. In typhoid fever, every three hours, there is nothing better. While I cannot say that it shortens the attack, it relieves the excessively disagreeable odor of the feces and the tenesmus and flatulence produced by the accumulation of wind in the colon.

Himrod's Asthma Cure is said to consist of equal parts of lobelia, stramonium, and tea leaves, with some nitrate of potash and a little fennel or anise.

The Chemistry of Strophanthus.

PROFESSOR T. R. FRASER, F.R.S., has now made a complete chemical examination of the various parts of *Strophanthus hispidus*, and has given a brief account of his results to the Royal Society of Edinburgh. The paper is printed in the *British Medical Journal* of July 23d. It will be recollected that Professor Fraser, in his first (1870) accounts of strophanthus, stated that its active principle was a crystallizable glucoside—strophanthin. Hardy and Gallois, a few years later, also separated a crystalline body from the seeds, which they took to be strophanthin, but they were unable to confirm Fraser's statement that it is a glucoside. Lately, various chemists have examined the seeds, and have failed to obtain strophanthin in a crystalline form. Professor Fraser's paper explains why this is so. The seeds which he first examined, also those obtained from Mr. Buchanan, of Blantyre, in 1881, yielded crystallized strophanthin; but from "seeds obtained from Mr. Buchanan in 1885, and also from seeds liberally placed at his disposal by Mr. Moir and by Messrs. Burroughs and Wellcome last year, he failed to obtain an equally definite crystalline body." The crystals formerly obtained were re-examined, and were found to be resolvable by acetate of lead into an active glucoside and a peculiar acid, for which the term *kombic acid* is suggested.

The following is the method for preparing pure strophanthin:

Starting with the product obtained in the earlier process, it is dissolved in water, tannic acid is added, the tannate is digested with recently precipitated oxide of lead, and then with rectified and proof spirit.

The extract obtained is dissolved in a small quantity of rectified spirit, and the solution is precipitated by ether.

The precipitate is finally dissolved in weak alcohol, and through this solution carbonic acid gas is passed for several hours, by which means lead is completely got rid of. After filtration, the solution is evaporated at a low temperature, and the residue dried *in vacuo* over sulphuric acid.

The residue, which is strophanthin, becomes white and does not crystallize perfectly. It is neutral or faintly acid, quite soluble in water, slightly in rectified spirit, and insoluble in ether and chloroform.

The average of several combustions gave the following percentage composition:

$$\left.\begin{matrix} C = 55.976 \\ H = 7.754 \\ O = 36.283 \end{matrix}\right\} = C_{20}H_{34}O_{10}$$

The following are the most characteristic color reactions of the substance: Strong sulphuric acid produces a bright green color, which soon becomes greenish-yellow and brown; sulphuric acid and bichromate of potash, in addition to the changes produced by sulphuric acid, a blue color; phosphomolybdic acid, after contact for a few hours, a bluish-green which, on the addition of a few drops of water, becomes pure blue; nitric and hydrochloric acid, and caustic potash, ammonia, and other alkalies, all give yellowish colorations. With a one-per-cent solution in water, phosphomolybdic acid causes somewhat slowly a bright green color which, after prolonged contact becomes greenish-blue; nitrate of silver, a reddish-brown color and a slight dark precipitate; and tannic acid an abundant white precipitate, soluble in excess both of strophanthin and of tannic acid. Nearly all acid reagents cause the solution to become slightly hazy, and it is then found that the solution contains glucose. This decomposition is also produced by sulphuretted hydrogen, more distinctly and rapidly after gentle heating, and for this reason it is not advisable to use sulphuretted hydrogen in any process for preparing strophanthin.

The change last noted appears to be caused by all mineral acids except carbonic acid, and by some organic acids. Even a solution of strophanthin is changed in the course of a few hours by as little as 1.5 per cent of sulphuric acid. There separates a crystalline substance (strophanthidin), which Hardy and Gallois mistook for strophanthin.

The decomposition takes some time to complete, and is accompanied by liberation of glucose, the presence of which in the decomposed solution was proved by fermentation with yeast, as well as by other methods.—After *Chem. and Drugg.*

SOLUTION of sodium sulphite is said to remove iodine stains.

The Proximate Principles of Trillium (Beth-Root).*

THE author is aware of the fact that the drug, as it occurs in the market, is derived from more than one species of Trillium. Still, as the Trillium erectum is probably the one which has most frequently been the basis of experiments and pharmaceutical preparations, he devoted his attention to the root of Trillium erectum, though he had to rely, for the supply of this, upon the good faith of a dealer.

The powdered drug, when dried at 100° C., lost 6 per cent, due to retained moisture.

On exhausting the powdered drug with petroleum ether boiling at 45° C., this solvent yielded 8.2 per cent of a viscid *oil*, of a reddish color, completely soluble in alcohol (from absolute down to 90 per cent), ether, and chloroform. It is readily saponified by potassa, producing a soap soluble in water and alcohol, and yielding nothing to ether, chloroform, or petroleum ether.

The powder, after being dried, was then exhausted with stronger ether, when it yielded 4.8% of a reddish body, insoluble in water and petroleum ether, but soluble in alcohol. This turned out to be a *resin*, soluble in potassa.

Next, the powder was macerated with alcohol. This extracted 18.9% of *extractive matter*, which yielded to chloroform—but not to petroleum ether or to benzol—a white amorphous powder, at first of a bitter, and afterwards a sweetish taste, turning red with hydrochloric and purple with sulphuric acid, insoluble in ether, and producing a foam upon agitation with water in which its soluble. These properties lead the author to believe that it may be identical with *convallamarin*, to which the drug may owe its bitter taste and emetic action. This was the only *glucoside* which could be detected in the root. Alkaloids were also proven to be absent.

The powder having been dried at 40° C., it was macerated with distilled water. From the aqueous solution, alcohol precipated *gum* (vegetable mucilage), the percentage being 0.21. The filtrate from this, when evaporated at 70° C. to a syrup and mixed with absolute alcohol, yielded another small quantity of the above glucoside.

The root was also found to contain starch.

A volatile oil—which had been assumed to be present in the root by former experimenters—could not be discovered. The author also failed to find any volatile acids or alkaloids. But a portion of the last aqueous macerate showed the presence of an *organic acid*, which was obtained in too small a proportion to be examined.

The ash amounted to 2.3 per cent, and consisted chiefly of the carbonates of sodium and potassium and traces of nitrates.

Copper in Extracts.

D. P. SHULER, of Ann Arbor, reports in the *Pharmaceutical Era*, for October, the results of an examination of a number of extracts with a view to determining the presence of copper to an injurious extent. The articles examined embraced extracts of taraxacum, gentian, damiana, cannabis, buchu, digitalis, hyoscyamus, belladonna, podophyllum, aconite, hops, nux vomica, ignatia, and ergotine.

None of the extracts, except the two of cannabis, that of hops, and the "digitalin" concentration, gave coatings heavy enough to indicate more than one part of copper in from 50,000 to 100,000 parts of extract; and those above mentioned showed a coating of copper on the foil by Cresti's method (*Zeitsch. f. anal. Chem.*, 16, 474). This method is as follows: To the slightly acidulated solution add a small strip of platinum foil and a piece of granulated zinc (the latter resting on the former), and leave them in the liquid for several hours. Then remove the platinum foil and expose it for a few seconds to the fumes of bromine and of hydrobromic acid obtained by heating solid potassium bromide with concentrated sulphuric acid, when, if copper be present, a violet to a purple color will be observed, due to solution of the cupric bromide in hydrobromic acid.

In the sample of cannabis which showed the largest proportion of copper, an attempt at quantitative analysis failed. It certainly gave no more decided reaction than was obtained from a known solution of 1 milligramme of copper sulphate per cubic centimeter of solution.

It was the opinion of Mr. Shuler that extracts do *not* contain copper to an injurious extent.

Syrup of Althæa.

THE Pharmacopœia Committee of the German Pharmaceutical Association recommends the following formula for the production of a *clear* and stable syrup of althæa:

Althæa Root, cut	10 parts.
Alcohol	5 "
Water	a sufficient quantity.
Sugar	300 parts.

Wash the althæa root *thoroughly* with water, then macerate it for three hours in a mixture of 5 parts of alcohol and 250 parts of water, with repeated stirring. Strain the liquid without pressure, and in 200 parts of the strained liquid dissolve the sugar at a gentle heat. [Then raise it once to boiling, and transfer the syrup to small vials, which should be completely filled, well corked, and kept in a cool place.]

The Committee attaches the following note. In order to obtain a very clear and stable syrup of althæa, it is important to thoroughly wash the roots previous to maceration. The best way is to rub them strongly with the hand; the strained liquid will then be entirely clear, and will not deposit a sediment even when standing for some time. It has been proposed to allow the strained liquid to stand in a closed or covered vessel during twelve hours, and to filter afterwards; but this does not promote the clear condition of the liquid. Any delay caused by setting the liquid aside induces the beginning of a change, involving the generation of ammonia, and, later on, of products of fermentation. Experience has shown that only by at once converting the filtered liquid into syrup, and raising to a boil, can a stable syrup of althæa be produced. The small amount of alcohol present is valueless as a preservative agent. Yet as it causes the extract to have a lighter color, it may remain. If a little citric acid were added to the strained liquid, instead of using alcohol for maceration, the liquid would be still lighter in color, as well as clearer.—After *Arch. d. Pharm.*, 225, 708.

Means of Preventing Foaming in Boiling Liquids.

ACCORDING to Hermann Kunz, the best method of preventing foaming in boiling liquids is to introduce a small fragment of paraffin, which will melt upon the surface, and, by its power of equalizing the surface and preventing the formation of waves, counteract the tendency to foam. It is not at all necessary to use enough paraffin to cover the whole surface of the liquid. It is sufficient to add such a quantity that it will form a narrow ring at the edge of the liquid. It will then keep on boiling quietly and without foam within that ring.—After *Arch. d. Pharm.*

Other authors have recommended for the same purpose some fat or fatty acid. It will, of course, depend upon the nature of the boiling liquid which of these several substances should be taken.

Means of Preventing Foaming in Cold Liquids.

IN connection with the preceding note, it will be useful to recall a few methods for preventing foaming under other circumstances. During the assay of urine for urea, for instance, it usually happens, if the urine is albuminous or has become alkaline, that the decomposition with an alkaline hypobromite produces such a copious foam that the volume of gas generated cannot be read off lor a long time. According to Méhu, this is best prevented by introducing into the measuring burette a minute pellet of lard (or some other fat).

When foam forms on the surface of some liquid, as, for instance, on the surface of a column of volumetric solution inside of a burette, or on the surface of liquid in a bottle, a very easy way of causing it to vanish is to allow some vapor of ether to fall upon it, by holding a bottle containing the latter in an inclined position over it.

Morphine Phthalate.

"KING of the Morphine Salts" is the modest claim put forward br Mr. Bombelon on behalf of morphine phthalate (*Pharm. Zeit.*, Aug. 27th, p. 488), as being free from the defects of the compounds of the alkaloid with the mineral acids and with acetic acids, and especially suitable for subcutaneous injection. Morphine phthalate being noncrystalline, it requires to be prepared with very pure material, and with this object, Mr. Bombelon recommends that the alkaloid should be obtained first by precipitating pure morphine hydrochlorate with caustic ammonia, washing and pressing the precipitate, dissolving it in acetic acid, and then again precipitating, washing, and pressing it. This pure morphine should be added to a hot solution of phthalic acid, in which it is very soluble, as long as none remains undissolved, and the solution, after cooling, filtered and evaporated finally upon glass. The handsome glassy scales thus obtained are described as being very soluble, the salt only requiring about 5 parts of water; the preparation therefore allows of the use of very strong solutions of the alkaloid.

Dilute solutions are said to remain unaltered and without fungoid growth. Mr. Bombelon states that phthalic acid forms with other alkaloids salts that are very soluble and permanent.—After *Pharm. Journal.*

Removal of Ink Stains.

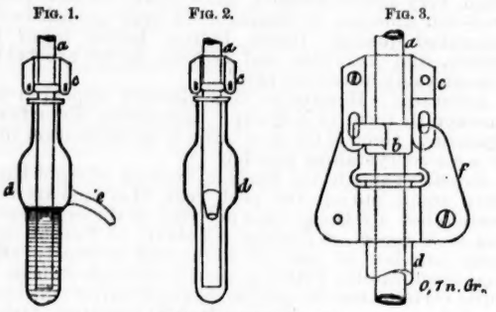
SOLUTION of chlorinated lime, one ounce, with two drops of acetic acid is used in many offices to remove ink from paper or parchment. Apply a drop of solution to the writing without rubbing; when the ink has disappeared the fluid is taken up with a blotter.

The same fluid may be used for lace and other white goods.—*Chem. and Drugg.*

* Abstract of a thesis presented to the Massachusetts College of Pharmacy by D. J. Prendergast, 1887.

MERCURY JOINT FOR DELICATE REAGENTS.

CERTAIN reagents, such as solutions of stannous chloride, caustic baryta, ferrous sulphate, etc., are so prone to be affected by the air, that it is considered practically impossible to keep them without spoiling. A novel device, recently proposed by C. Reinhardt, however, bids fair to do away with this drawback. He proposes to keep them, as usual, in reservoirs (large glass bottles), and to draw them from the latter by means of a permanently fixed glass siphon tube. But, instead of providing the end of the latter either with a glass stop-cock or with a rubber tube and pinch-cock, he causes the end of the tube to dip into mercury when it is to be kept closed. The mercury is contained in a glass vessel with a spout at the side, of the form shown in Fig. 1. The shaded portion represents



Reinhardt's mercury joint.

the mercury into which the siphon tube dips. The glass vessel holding the mercury is held in position by means of a catch *f* engaging the rim of the glass vessel *d*. The catch itself revolves around a collar applied to a shoulder blown on the glass tube. When the glass vessel *d* is turned through an angle of 90°, so as to arrive from the position shown in Fig. 1 to that of Fig. 2, the catch *f* arrives over notches in the collar, and may be pushed down. As soon as the outlet of the siphon tube emerges from the mercury, the liquid begins to flow through the spout *e* and the flow may be stopped at once by pushing the vessel *d* up again. —After *Dingler's Pol. Journ.*, 264, 83.

GRADUATED PIPETTE FOR BROMINE.

A. SIMON recommends to use, for bromine, a graduated pipette, the lower orifice of which is closed by a small hollow glass bead, containing a drop of mercury (to make it heavy) and drawn out to a point, which passes through the orifice of the pipette. The bromine is best kept below a sufficiently deep layer of water. When some of it is to be withdrawn, the pipette is immersed into the vessel to the bottom, so that the slender stem of the glass bead is lifted up, whereupon bromine will rise in the pipette, or it may be drawn up in the latter by suction. It may then be lifted out, and when it is to be emptied, this is accomplished in the same manner.—*Arch. d. Pharm.* and *Chem., Centralbl.*, No. 21.

Note by Ed. Am. Dr.—If suction is to be used to draw bromine up in the pipette this should under no circumstances be done direct, or by the mouth. Either a rubber bulb and tube should be used; or, if suction by mouth is preferred, the pipette should be connected with an intermediate bottle containing water, and suction be applied to this.

In trying to empty the pipette, when the stock-bottle contains a rather high column of bromine, it will be found that the contents of the pipette will refuse to flow out, being counterbalanced by the surrounding bromine. It is preferable to insert, together with the pipette, a thin glass rod, one end of which is bent over at a right angle and flattened. The pipette is held so that its orifice is still within the watery column. On gently pushing the flattened end of the bent glass-tube against the stem of the glass-bead, the latter will rise, and allow the whole contents of the pipette to flow out.

Lime-Juice and Glycerin.

(Inseparable.)

THE following formula is given in the *Chem. and Drugg.*

Nut-Oil	16 oz
Lime-Water	12½ oz
Powdered Soap	1 oz
Water	3½ oz
Oil of Lemon,	
" " Bergamot, of each	q.s.

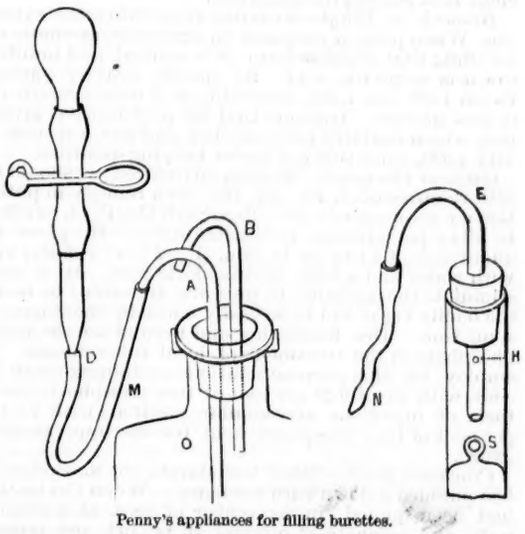
Dissolve the soap in the water by the aid of the heat; mix the oil with the lime-water; add the soap solution and the perfume, and mix well. [In this preparation, the title "lime-juice" is certainly misleading.]

APPARATUS FOR FILLING A BURETTE.

THE difficulty of filling a burette with standard solutions without a material loss of strength from evaporation has suggested to me the following plan: In Fig. A is a glass tube bent as shown and extending to the bottom of the bottle C, containing the standard solution; B is a similar tube extending just beneath the stopper; both tubes are sealed in the bottle after it is filled. A small rubber tube, 30 Cm. or 40 Cm. long, fits at either end on the glass tubes A and B, and remains in this position when the bottle is not in use. When the burette is to be filled, the rubber tube is detached from B and slipped over the top of the burette at D, thus leaving B open for the admission of air when the fluid is drawn from the bottle.

In Fig. 2, E is a bent glass tube fitted by means of a stopper to the top of the burette; it is pierced by a hole H, in the side, just beneath the lower surface of the bottle, and extends about 2 Cm. beyond, being open at each end; a rubber tube is attached to its outer end for the purpose of making suction with the mouth.

The bottle being attached by means of the rubber tube M to the tip of the burette, and the compressor being open, the fluid is drawn, by suction on the tube N, through the tube A, together with some air, into the burette. If a swimmer is not used, the air bubbles will simply rise to the top and give no further trouble. With a swimmer, however, it will be necessary to remove them by drawing the swimmer forcibly against the bottom of the tube E (Fig. 2), when they will pass by the swimmer and escape; if not at the first trial, by allowing the swimmer to recede slightly and repeating the operation, the air will easily pass out; the object of extending E (Fig. 2) beneath the stopper and of the lateral hole in E is to prevent the solution from entering the suction tube N. When the burette is free from bubbles, the fluid may be allowed to recede until the swimmer stands by the mark. The rubber tube



Penny's appliances for filling burettes.

M (Fig. 1) is detached from the burette and restored to its place on tube B, thus sealing the bottle against any possible evaporation. The efficiency of the apparatus in preventing loss of strength is evident; in practice I have found this method more speedy than any other I have known.—C. L. PENNY in *Am. Chem. Journ.*

The Uses of Hydrogen Peroxide.

MR. JOHN G. BENEDICT, in a thesis submitted to the Massachusetts College of Pharmacy, gives a very comprehensive résumé of the literation of hydrogen peroxide, in which it is stated that the substance was introduced to common use in 1870 as a hair bleacher; its value as a bleaching agent for animal substances being particularly great. As a germicide it also rates high. As a medicinal agent it was first proposed by Dr. B. W. Richardson in 1858. In May of the same year, Dr. W. B. Clark, of Indianapolis, published in the *Medical Era* his experience with it in a number of diseases, and Dr. W. A. Blackman, of Brooklyn, N. Y., read a similar paper before the New York Society for Medico-Scientific Investigation in July, 1866. Both of these authors spoke of its influence in destroying pus, and its curative influence in purulent ophthalmia, suppurative otitis media, gonorrhœa and leucorrhœa. Pean, a French surgeon, used it as a spray in ovariotomy. Dr. Day, of Australia (*Lancet*, January 11th, 1868), used an ethereal solution in a case of diabetes, which recovered. It is recommended in cases of septic dyspepsia and carious teeth. It is rated as 60 times more powerful as a bactericide than carbolic acid; 20 times as powerful as salicylic acid, and 40 per cent more potent than corrosive sublimate.

Semi-Annual Report on Commercial Drugs and Chemicals.

[From Gehe & Co.'s Handelsbericht for September, 1887.]

Adonis æstivalis—has been repeatedly asked for as a substitute for *Adonis vernalis*. It is said to be more powerful in its effects than the latter.

Amylene Hydrate.—This new hypnotic, which is also known as dimethyl-ethyl-carbinol, or tertiary amylic alcohol, is reported to have this advantage over chloral, that it does not affect the action of the heart, and over paraldehyde, that it acts in smaller quantity and without the disagreeable odor which the latter imparts to the breath. The dose is 3.5 to 5 grammes, dissolved in sweetened water.

Antifebrin—or rather, acetanilide, is being used in very large quantity, its consumption amounting to twice that of antipyrin, which is probably due to the fact that, as an antipyretic, it is the cheapest agent so far rendered available. Gehe & Co. express their regret—as we have done on several occasions before—that the article has been introduced into medicine under a copyrighted name, and they strongly advise physicians to prescribe it under its proper chemical name "Acetanilide."

Antipyrine.—The extensive applicability of this preparation, at first only valued for its antipyretic properties, insures to it its permanent place among the most important drugs. We have already drawn attention to the experiments of Prof. Germain Sée, who found antipyrine to be a most effective anodyne in rheumatic and gouty affections, sciatica, and similar troubles. It is said in these cases to be an efficient substitute for morphine, and as it is quite soluble in water may be easily administered in hypodermic solution. The dose, for this purpose, is 0.5 Gm. (ab. 8 grains); internally administered, the dose is 2 Gm. (ab. 30 grains).

Bismuth Salts.—Aside from the subnitrate, the most frequently used salt of bismuth, in Gehe & Co.'s experience, is at present the salicylate.

Bromide of Ethyl—is coming again into more extended use. When pure, it possesses an agreeable, aromatic odor, recalling that of chloroform; it is neutral, and indifferent towards sulphuric acid. Its specific gravity varies between 1.390 and 1.460, according as it may contain more or less alcohol. It seems that the preference is given to that which contains more alcohol, and has a specific gravity 1.390, since this has better keeping qualities.

Calcium Phosphate- is being introduced [we should have said re-introduced, ED. AM. DR.] as a remedy in phthisis. Rebory recommends the tribasic salt $Ca_3(PO_4)_2$ as efficient to allay perspiration in consumptives. He gives it in quantities of 4 to 8 to 15 Gm. (1 3-2 3-4 3) daily, mixed with water and a little hydrochloric acid. It is said to stimulate the appetite, to improve digestion, to increase the bodily vigor, and to be easily borne by the stomach for some time. Drs. Kohlischer and Freund use the calcium phosphate in the treatment of local tuberculosis. They employ for this purpose solutions containing about 7 per cent, with about 0.25 per cent of free phosphoric acid, in form of injections. and similar solutions with 2.5 to 3.5 per cent of free phosphoric acid for the impregnation of gauze.

Cinchona Bark.—Since last March, the market of bark has pursued a downward tendency. When Ceylon barks had been quoted, in September of 1886, at 3 pence per unit, and sulphate of quinine at 1*s.* 10*d.* per ounce, it was supposed that the lowest possible limit had been reached. Reduced shipments from Colombo, indeed, caused a slight reaction, but when the export had again reached, during March, the figure of the previous year, the price began to decline again and fell to a lower point than had ever been supposed to be possible. Since June, however, the exports from Ceylon have again slightly diminished, and the condition of the London market, compared with that of the preceding two years, appears to be favorable to an improvement in this article. Nevertheless, there is a continued depression and downward tendency. Possibly this is due to the fact that the apparent reduced exportation of Ceylon barks is offset by increased shipments of Java bark, which is, moreover, much richer in alkaloid than the former.

The exports from Java are reported as follows:

July 1st		May 31st	Dutch Pounds
1883	to	1884	1,038,934
1884	"	1885	1,083,555
1885	"	1886	1,404,815
1886	"	1887	2,054,044

South American barks continue to be of secondary importance. It is doubtful whether the newly started plantations in Bolivia will soon appear as rivals on the market, in view of the generally depressed condition of the value of bark. And the plantations started in many other localities will no doubt have to suffer from the same cause.

Cantharides.—Two new Chinese varieties of cantharides have made their appearance in the London market. They have been indentified as *Lytta Gorhami* and *Huerbys sanguinensis*. According to Mr. Moss, however, these insects only produce a sort of inflammation upon the skin, but no real blister. In this connection, Gehe & Co., report the recent appearance, at Trenton, N. J., of an insect, which is not only injurious to the vegetation, but also exerts a blistering action upon the human skin, similar to that of the Spanish fly. [We expect to receive a report on this subject at a later date.—ED. AM. DR.] A large number of persons in Trenton are reported to have suffered from blisters caused by these insects.

Codeine.—Whether the new patented process for preparing codeine synthetically is really in operation or not, does not appear to be quite clear. Gehe & Co. have no more information about it than it is contained in the patent specifications; and our efforts to learn more about it have likewise remained fruitless up to the present time.

Convallaria Flowers.—The consumption of these appears to have considerably diminished.

Coca Leaves.—The importation of this bulky drug has been very much reduced, since crude cocaine, prepared in South America, is obtainable in large quantities and of improved quality. Green Bolivia leaves begin to be scarce, and Peruvian and Truxillo leaves are held at a considerably advanced price.

Duboisine.—Heretofore this alkoloid appeared in the market in form of a syrup. Ladenburg identified it as *hyoscine*. Gehe & Co. now bring it in the market in form of a microcrystalline powder.

Ergot.—Though the Russian harvest of ergot has been very small during the past year, this appears to have been offset by the greater activity of the ergot—according to a report of Professor Kobert, of Dorpat—since a large number of persons were very seriously affected (one even fatally) with ergotism in a single village. It is quite certain that the quality of ergot varies considerably in different years, or according to localities, and often depends upon uncontrollable factors, such as heat and moisture. The method of *keeping* is likewise of great importance. Prof. Kobert found samples, which he had kept since 1884, to be entirely inert. [This is nothing new to us, who have a much more extended experience in this country with ergot than our European confrères.] Prof. Lasarski has recently published the results of many years' study of ergot, among which he announces the fact that ergot is of the greatest intensity a certain time "*before* the harvest." [That is to say, before the rye is ripe and ready to be harvested.] During the time of harvest it is already in its decline, and later on still more so. Looked at from the standpoint of the dealer, ergot is the most unreliable article known to the trade, since the percentage of the real active principles, Kobert's *cornutine* and *sphacelic acid*, not only varies in the drug when freshly collected, but disappears entirely by long keeping. It is, therefore, a good thing for the trade that the majority of physicians still considers the percentage of *sclerotic acid* as the decisive criterion, which principle is present even in the poorest grades of ergot. [This is an important statement of Gehe & Co., and betrays a very commendable spirit of honesty and liberality, rather seldom met with nowadays among wholesale dealers of drugs, who are often glad to withhold from their customers the means by which poor drugs may be recognized.]

Ether.—More attention is recently paid to tests of purity for ether, since it has been shown by Dr. Vulpius that an ether may have the specific gravity 0.722 and may, nevertheless, be contaminated with heavy oil of wine. Medical authorities claim that such an ether does not possess full narcotic powers, as the excitant properties of the heavy oil of wine counteract the effects of ether. Another, though less important feature is a peculiar property of some kinds of ether which causes the development of a yellow color with solutions of iodides. It is supposed to be due to the formation or presence of peroxide of hydrogen. There seems to be no other way to guard against this except to keep the ether most carefully from contact with light and air.

Guarana—maintained its high price, and was obtainable only in small lots. Its consumption in Brazil is known to be very large, and aside from the quantity which the wild-growing plants of the Amazon district furnish to the indolent inhabitants of the equatorial region, the plant is found in larger quantity only in the districts of Mané, Villa Bella, and Imperatrix. It requires a somewhat dry, loose, clayey soil and prefers an inclined plane like the vine. The seeds are planted in furrows, and when the plants have attained a height of 15 to 20 centimeters, they are transplanted. Some place the seeds in small baskets filled with earth; when the young plant is about 10 centimeters high, it is put, together with the basket, in the designated furrow. When finally located, the plants are 6 to 8 meters (18 to 24 feet) distant from each other, and are trained up along trellis-work. Much care is required for the cultivation, since it requires from three to four years to obtain a crop. The shrub flowers in July, and the fruits ripen in November and December. After fruiting, the plant must be pruned every year. The whole treatment, in fact, much resembles that of the vine, except that a tropical climate is requisite for its success. According to the statement of planters, a shrub will yield a good harvest during more than forty years, each plant yielding between 3 and 4 kilos of guarana.

Gum Arabic.—The hoped-for return of an orderly condition of things in the Soudan is still a pious wish, and the late Italian blockade of the Massowa coast has even destroyed the hope of obtaining genuine gum arabic by this route. Reports from Khartum are said to have reached the coast that the stock on hand in Upper Egypt is but scant, since but little gum had been collected, and this had been used by the inhabitants as food. Hence, even should commercial intercourse be re-established with the Soudan, it is useless to at once expect large supplies of gum arabic. Meanwhile, all the stock of this article available in the markets of the world, with the exception of small reserved quantities, may be regarded as exhausted. It will, therefore, be necessary to fall back upon Gezireh gum, which may be had, if carefully selected, in quality sufficiently serviceable for medicinal purposes, though likewise at high prices. During the first half of the present year 4,354 seroons of this gum reached Trieste; but of this quantity only 278 seroons remained in stock on July 1st, without immediate expectation of fresh supplies. The various substitutes, gums of East Indian, Australian, and other origin, have stiffened in price, and their available supplies are likewise smaller than at the same time during the preceding year. Senegal gum has also become dearer. It is, however, expected that Galam gum will be readily obtainable, as it is said to have been harvested in large quantities.

Hydronaphthol.—Gehe & Co. state that the sample of hydronaphthol which has come into their possession has been found to be identical with beta-naphthol. They declare it to be the crude substance, from which the pure beta-naphthol may be obtained by recrystallization and treatment with animal charcoal. The same result may be obtained by cautious sublimation.

Hydroxylamine Hydrochlorate.—The strong reducing power of this chemical had been made known already by its discoverer, Lossen. Attention had been directed to it by several writers as being probably a highly effective developer of the invisible image upon the sensitive silver film. But the high price precluded its general introduction. At present, however, there is a prospect of a material reduction, so that its general use in photographic practice may be only a question of time.

Hyoscine.—The pure alkaloid is not used in medical practice, only the hydrochloride, hydrobromide, or hydriodide. Which of these is the most suitable is not yet decided. The dose may be assumed to be the same for all, namely, internally, as 0.0002 to 0.001 (or $\frac{1}{300}$ to $\frac{1}{64}$ grain) as a hypnotic for the insane, etc.; in smaller quantities, as a simple narcotic.

Jaborandi Leaves—have become very scarce, and small lots appearing here and there are found to be too poor to be used for the preparation of the alkaloid, pilocarpine.

Iodoform.—The preference appears to be at present given to the light, voluminous kind, while formerly, the heavy, hard crystallized variety was preferred. [This is our experience likewise. See page 218—Ed. Am. Dr.]

Kefyr—has been in active demand. Gehe & Co. obtain regular supplies of the ferment from the Caucasus.

Matico Leaves—according to Gehe's report, are not obtainable in the European market at all.

Makassar Oil—from *Schleichera trijuga* (not to be confounded with the proprietary Makassar Oil, the reputation of which appears to be based upon, or to have been borrowed from that of the genuine oil) seems to be in reality a very efficient and stimulating agent for the scalp, both cleansing it and promoting the growth of hair.

Oil of Betel—has reached Europe in somewhat larger quantities. It has been found serviceable in diseases of the fauces and bronchial passages. Mr. Schmitz, apothecary at Samarang, the manufacturer of this oil, regards the active principle as being of the nature of an aldehyde, while Prof. Eykman thinks it belonging to the phenols, and to be probably identical with carvacrol.

Oil of Petigrains—of Paraguay production is again in stock, and in quality is said to be equal to the French.

Oil of Rose.—The total yield of oil of rose in the Balkan district, during the past summer season, is estimated at 500,000 meticals, or 2,400 kilos, being about 720 kilos in excess of last year. In consequence of this, the price has somewhat receded.

Oil of Peppermint.—Gehe & Co.'s report was evidently written before the recent sharp decline in the value of oil of peppermint had culminated. It may, however, be of interest to state that Gehe & Co., who have apparently always quoted H. G. Hotchkiss's oil as the standard, have now also, as an experiment, put in stock some of Todd's oil of peppermint; they add that "this is said to be equal to the before-mentioned, and to have been distinguished by its steady uniformity."

Opium.—The anticipation of a diminished crop, during the present season, has been realized. The expected yield for the year 1886 had been 9,000 chests, but it turned out to be only 7,500. This deficiency would already then have produced a permanent upward tendency, if it had not been for considerable stocks remaining over. When it, however, appeared, a little later in this year's season, that the excessive heat considerably diminished the hopes for a satisfactory harvest, prices began to stiffen. Finally, it turned out that the whole crop in Asia Minor amounted to only about 1,500 chests, or including Salonichi, but little over 2,000 chests. On the 26th of August, for instance, only 276 chests arrived at Smyrna, against 1,963 on the same day of the preceding year. Nevertheless, since considerable stocks of opium remained over in London and New York, and consumers were not anxious to buy, the price receded again a trifle. It is even supposed that, in spite of the short crop, there will be no lack of opium, unless speculation should obtain possession of the article. Persian opium is likewise said to have had an inferior crop. If this is confirmed, it will materially influence the value of Smyrna opium.

Orthosiphon stamineus.—The leaves of this labiate shrub, indigenous in Java, are there used in diseases of the urinary organs, and are occasionally demanded. In commerce they appear in a rolled form, resembling tea. The leaves are small, oval, and finely toothed; their upper surface is deep green, the lower somewhat lighter green. The branch-veins pass from the central vein to the margin, and follow the latter to the point, where they run together.

Phosphorus.—For the use in air-analysis, and for the preparation of organic compounds, Gehe & Co. offer phosphorus in sticks of only 3 millimetres in thickness. This is put up in tin boxes containing ½ kilo or 1 pound. The price is about 2½ times that of ordinary phosphorus.

It would be a great advance, if some manufacturer of phosphorus were to put on the market a product entirely free from arsenic. There is no doubt that many would gladly pay the increased price which such an article would command. Even if it were found that a continued manufacture of such a product would be unremunerative, yet it might be turned out periodically, in proportion as the stock on hand diminishes. The maker could make his own price, with ample profit, and still be assured of a sale of the article.

Pyrogallic Acid.—This acid is principally consumed in photography and to a smaller extent in medicine. In future its use is likely to be somewhat restricted, since it is announced that the *hydrochlorate of hydroxylamine* promises to replace pyrogallic acid and oxalate of iron as a developer in photography.

Quinine.—The extraordinarily large stocks of bark available—to manufacturers—have strangled all spirit of speculation, so much so that even the lowest conceivable offers could not produce any enlivening effect upon the market. Besides, the interest in quinine has been materially lowered by the advent of the several new antifebrile remedies recently introduced. European markets have a tendency to seek their main outlets in the United States, where the consumption of quinine is constantly on the increase. But the American market [as we all have reason to know, from personal acquaintance] is likewise overstocked. During the first six months of this year, there were imported 1,190,668 oz. of quinine, against the following quantities in the same period during the four preceding years:

1886: 600,400	1884: 308,045
1885: 409,700	1883: 225,000

Rhubarb.—The condition of the rhubarb market, during the past year, has become even worse than it had been previously. Fine Shansi is no longer obtainable either in China or in London; and even the medium grades of Canton and Shanghai rhubarb leave much to be desired.

Saccharin—has at last been put on the market (see elsewhere in this number), and Gehe & Co. think that the prospects of its extended use are good.

Among the amido-derivatives of the aromatic acids, there appear to be some other sweet compounds. Wittig, some time ago, reported in the *Chemiker Zeitung* having found such a body which he supposed to be *para-sulphamido-benzaldehyde.*

Strophanthus Seeds.—It is quite probable that the staple product hereafter coming into general use will be the active principle strophanthin, which is as yet too expensive. It remains to be seen which of the various species of strophanthus will be the most profitable source for preparing it. The mother-plant of the pods at present available in the market is not yet determined with absolute certainty, at least so far as the species is concerned. The present supply is said to come from the Shiri Highlands in eastern Africa. But in Western Africa it is also reported to be common, although its collection there is said to be quite difficult. The plants are reported to occur only singly, not in groups, and it is reported that the natives have already commenced to tear off and destroy the unripe fruits to prevent their coming into the hands of the Europeans.

Blue Marking Ink for Boxes, Bales, etc.

Mix a sufficient quantity of ultramarine with barytes (sulphate of barium, blanc fix) and water to produce the desired tint. It may be rendered more permanent by adding some liquid glue (solution of glue in acetic acid) or some starch paste, prepared with the addition of a little wax.—*Chem. and Drugg.*

Some of the New Synthetical Remedies.

H. HELBING, the pharmacist of the German Hospital, of London, England, gave, in a paper before the British Pharm. Conf., the following summary of some of the new chemical derivatives employed more or less extensively in medicine:

Acetphenetidin, Paracetphenetidin.

$$NH(COCH_3)C_6H_4OC_2H_5.$$

This antipyretic has only been in use for a short time, but the results hitherto obtained with it are described as excellent. Hinsberg and Kast have shown that a dose of 3 to 8 grains is able to reduce the temperature of the human body by 3.6° F., and the experiments carried out in the clinic of Prof. von Bamberger, of Vienna, have only tended to confirm the favorable accounts of the discoverers. It appears to be perfectly devoid of secondary effects, and fully able to bear comparison with all other febrifuges.

It is a grayish-white crystalline powder without smell, producing a slightly pungent after-taste; it is practically insoluble in water, but dissolves readily in alcohol. The melting point is at 275° F. It is advantageously prescribed in the form of powders containing the above mentioned dose, since, from its tastelessness, it is readily taken by patients.

Amylene hydrate.—Tertiary amylic alcohol, dimethylethylcarbinol,

$$\begin{matrix} CH_3 \\ CH_3 \\ C_2H_5 \end{matrix} \!\!\rangle C.OH.$$

Only a few weeks ago, this compound was recommended by Professor Jolly and Von Mering as a soporific, in which class of remedies it appears to have taken a prominent place. Before applying it to patients, numerous experiments on animals had been carefully carried out. A dose of ʒ i. is sufficient to produce sleep for six or eight hours. No unpleasant secondary effects are recorded.

The remedy is given in water (in which it is soluble in the proportion of 1 : 12), with a little juice of licorice.

Amylene hydrate,	
Liq. glycyrrhizæ	āā ʒ i.
Aq.	ad ʒ i.

S. To be shaken before use.

It is also administered in capsules of gelatin.

It is a clear fluid with an odor reminding one slightly of camphor; it is soluble also in alcohol. Specific gravity 0.812 at 53.6° F. Boiling point 216° F.

Antifebrin, acetanilide, phenylacetamide,

$$C_6H_5NH.CH_3CO.$$

Since the first experiments with this valuable remedy, performed by Drs. Cahn and Hepp in Strasburg, antifebrin has been carefully studied by others, and with the same satisfactory results. It possesses the advantages over other remedies of this class of being low in price, and, moreover, the dose is small—2 to 10 grains once, twice, or at most three times a day sufficing to produce a considerable reduction of temperature in cases of typhoid fever, pneumonia, also in erysipelas and acute rheumatic gout. It is given in powders as well as in solution; for the latter mode of administration, it will be found most advisable to dissolve it in brandy, subsequently adding a little water and syrup. The following formula is given as an example:

Antifebrin	ʒ i.
Brandy	ʒ ivss.

Dissolve and add:

Distilled Water,	
Simple Syrup	āā ʒ vi.

One teaspoonful to be taken as directed.

The remedy is thus rendered very pleasant to take, and the patients express no aversion to it.

A good preparation should be of pure white color, and form moderately large crystals, which are but very sparingly soluble in cold water, rather more readily in hot, and easily in alcohol; antifebrin melts at 233.6°, and boils at 563°.

Antipyrin, oxydimethylchinizine, $C_{11}H_8CH_3.N_2O$.—Antipyrin may fairly be considered the most popular of modern antipyretics. The dose varies from 15 to 30 grains twice, three or more times a day. For children 3 to 12 grains will be found sufficient. It is of great value in all febrile diseases, reducing temperature very promptly. Of late it has also been applied in subcutaneous injection as a local anæsthetic. In some cases a bright pink rash, like nettle rash, will suddenly appear during treatment; this is considered to be of no importance, as it causes no inconvenience and soon disappears.

Antipyrin is readily soluble in water and alcohol; it possesses but little flavor, and that not unpleasant; and is, therefore, adapted for administration in solution. It thus possesses great advantages over quinine, especially in treating children, who take it very readily if mixed with a little syrup, thus:

Antipyrin	80 gr.
Simple Syrup	ʒ i.
Water, add to	ʒ iv.

Two teaspoonfuls for a dose.

This mixture is almost free from bitterness, and children do not at all object to it.

It crystallizes in colorless laminæ, which melt at a temperature between 230° and 235.4° F.

Antithermin, phenylhydrazinlevulinic acid,

$$CH_3C(C_6H_5N{-}NH)CH_2{-}CH_2COOH,$$

has been recommended as a febrifuge, but although it is now obtainable in the market, details are still wanting as to dose and effect. It forms large colorless crystals of a slightly bitter taste, which cause an unpleasant grating when ground between the teeth. It is insoluble in water, and but sparingly soluble in alcohol. The most suitable form for administering antithermin is the pilular.

Aseptol, acidum sozolicum, orthophenolsulphonic acid, $C_6H_4OHSO_2OH$.—By aseptol we understand a 33⅓ per cent solution of orthophenolsulphonic acid. It is almost odorless, but faintly suggests carbolic acid, and is reported to possess the antiseptic properties of this latter antiseptic and of salicylic acid, standing, as regards strength, midway between them. Its superiority lies in the possession of antiseptic without poisonous or irritating properties, so that it is especially adapted for abdominal surgery and for opthalmological operations. Sozolic acid is readily soluble in water, alcohol, and glycerin. It is applied in a solution of 3, 5 or 10 per cent, to which strength the stronger solution can be reduced by dilution with water.

Betol, salicylate of β naphthol ether,

$$C_6H_4OH.COO.C_{10}H_7.$$

This remedy is one of the very newest, and analogous to salol. It is applicable, therefore, in all those cases in which this latter is found to be of use, viz., rheumatism, cystitis, etc. The dose is given as 5 to 8 grains in some cases of intestinal catarrh. As it is not a phenol compound, betol possesses the advantage of being freer from detrimental properties than salol.

It forms small, white, resplendent crystals, is almost devoid of taste, and being insoluble in water is best dispensed as a powder or in compressed tablets, or in pills made up in liquorice juice and powder, each containing 2½ grains of betol. It is soluble in alcohol, as also in fatty oils, and is therefore well adapted for being worked up with butter of cacao into pencils for the treatment of gonorrhœa. These may be prepared by melting four parts of ol. theobromæ, and adding to the warm liquid one part of betol. This readily dissolves in the fat and the mixture is allowed to partially cool, when it is poured into moulds. The finished product contains, of course, 20 per cent of betol.

The melting point of betol is 203°.

Hypnon, acetophenon, $C_6H_5COCH_3$.

By means of 3 to 8 grain doses of this very powerful soporific a profounder sleep is produced than that caused by chloral hydrate. Hypnon possesses an agreeable aroma somewhat resembling a mixture of oil of bitter almonds and neroli, but its action on the mucous membrane of the mouth is almost caustic. It is dispensed, therefore, in capsules of gelatin, each of which contains 1 grain of the remedy combined with 10 of almond oil, to prevent any risk of unpleasant effects.

It is a colorless fluid, sparingly soluble in water, more readily so in alcohol, of the specific gravity 1.032 at 59° F., the boiling point being 410° F.

Methylal, dimethylether of methylene, $CH_2(O.CH_3)_2$.—Methylal is a soporific of very recent date. It is administered in doses of 20 to 25 grains in water, with a little syrup.

Thus:

Methylal	ʒ i.
Syr. Orange Flower	ʒ ss.
Water	ʒ i.

One tablespoonful for a dose.

It has also been applied externally as a local anæsthetic dissolved in oil, or as an ointment, with lard as a base. Both forms are made to contain 15 per cent of methylal.

It is a colorless ethereal fluid which smells like a mixture of chloroform and acetic ether, and tastes pungent and aromatic; it is readily soluble in water as well as in alcohol; the specific gravity at 59° F. is 0.855; it boils at 107.6°.

Naphthalin, $C_{10}H_8$.—To most fungi naphthalin has been found to be a powerful poison, and has proved very valuable as an antiseptic, being applied in the same manner as iodoform. Professor Rossbach, of Jena, first administered it internally in cases of acute and chronic enteric catarrh, in typhoid fever and acute gastro-intestinal catarrh. It has since been extensively applied, but not with absolutely uniform results. It is given as a powder in wafer in doses of 2 to 8 grains, to which a drop of oil of bergamot is added to obliterate the peculiar smell of tar

belonging to it, which makes it otherwise impossible for some patients to take it. For example the following formula may be adopted:

Naphthalin	30 gr.
Sacch. Alb.	30 gr.
Ol. Bergam.	1 gr.

Make a powder and divide into ten doses, one to be taken three times a day.

Naphthalin is a crystalline body forming colorless, resplendent scales; it tastes pungent, is insoluble in water, but sparingly soluble in cold alcohol and fatty oil, but readily if these agents are heated. The solution in oil and the ointments should be made to contain 10 per cent of naphthalin, which must be added to the warm fatty matter. Melting point 176° F., boiling point 424.4°.

Naphthol β = naphthol, isonaphthol, $C_{10}H_7OH$.—As a substitute for tar preparations, naphthol has been applied to the skin with very good results, especially in psoriasis and other chronic affections. A 2 to 5 per cent solution in alcohol is the usual form of application, but it can also be made up into ointment containing 3 to 25 per cent. Internal administration of this compound was attended with toxic effects, and has, therefore, been discontinued.

It crystallizes in resplendent scales, has an aromatic odor, is slightly soluble in hot water, readily so in alcohol and fatty oil. A very good ointment may be made by adding 1 part of naphthol to 10 of melted lard and well stirring. The substance dissolves without much difficulty, and forms a white smooth product.

Naphthol melts at 252°, and boils at 546·8°.

It should not be confounded with naphthalin.

Salol, phenylether of salicylic acid,

$$C_6H_4OH.COO.C_6H_5.$$

This remedy appears to give the greatest promise of future importance, for, in the short time that it has been known, it has done very good service as a febrifuge and an anti-rhoumatic, being administered in doses of 15 to 30 grains two or three times a day, as also as a gargle ʒ ij. thus—

Salol	ʒ ij.
Spirit. vin.	ʒ iv.

A teaspoonful to a glass of warm water for stomatitis and ulcerations of the mouth and pharynx.

A salol mouthwash is also very much recommended, and may be prepared as follows:

Take salol gr. 40, dissolve in ʒ iv. of a suitable spirituous dentifrice liquid. Half a teaspoonful to be used in a glass of water, with which it forms a milky emulsion.

For chronic forms of diphtheria, it is reported to have more powerful effect than solutions of chlorate of potassium or salicylic acid. It is also applied, worked up with butter of cacao into pencils, as an antiseptic. These are prepared in a similar manner to those of betol before mentioned.

Salol is a white crystalline powder of a mild aromatic odor; it is insoluble in water, but soluble in alcohol. The melting point is 108° F.

Thallin, $C_9H_{10}N(OCH_3)$.—Thallin is employed either as sulphate or tartrate. It is rapidly obtaining a recognized position in the materia medica, for it is a reliable and powerful antipyretic, applicable in all kinds of febrile conditions. Three to eight grains in pill are considered a suitable dose. It is also applied externally, especially lately, with great success for injections in cases of acute and chronic gonorrhœa, for which it is prescribed in aqueous solutions containing 1 drachm of the thallin salt in ʒ vi.

Salts of thallin are crystalline powders, not quite pure white in color, of a bitter and intensely aromatic taste, and of a peculiarly persistent odor, which is similar to that of cumarin; they are readily soluble in water, but far less so in alcohol.

Urethan.—Ethyl-urethan, $CO(NH_2).OC_2H_5$. As a mild hypnotic urethan is very useful, being administered in doses of 15 to 40 grains, either as a powder or in solution, with a little syrup as a corrective. Thus—

Urethan	ʒ ij.
Syr. simpl.	ʒ i.
Aqua	ʒ iij.

Two tablespoonfuls for a dose.

It does not produce a comatose condition like chloral-hydrate, but tends to induce a healthy natural sleep in cases where this is impeded by other causes.

It is a crystalline body of a mild ethereal odor, tastes somewhat like saltpetre, is soluble in water and alcohol, and melts at about 120° F.—*Pharm. Jour.*, September 24th, 1887.

"Antifungine," a proprietary article originating in Germany, is said to consist of acid borate of magnesium and free boric acid, with a few sulphates and chlorides. Its value as an antiferment, as shown by its effects in connection with culture media, is said to disprove its alleged value, as the common kinds of bacteria and bacilli grow quite as vigorously as if it were absent.

Fluorine Compounds as Antiseptics.

In a paper read before the Chemical Section of the British Association at Manchester, Mr. W. Thomson called attention to the remarkable antiseptic properties possessed by some fluorine compounds, especially by the fluorides and fluosilicates of sodium, potassium, and ammonium. Of these, he considers the fluosilicate of sodium best suited for a general antiseptic, it being non-poisonous and without odor; moreover, it has only a slightly saline taste, and might, therefore, he suggests, be employed in the preservation of food.

Sodium fluosilicate is soluble in water, to the extent of 0.61 in 100; but, according to Mr. Thomson, such a saturated solution is not irritating to wounds, whilst it possesses greater antiseptic properties for animal tissues than a 1-in-1000 solution of perchloride of mercury, which could not be ordinarily employed for surgical purposes without producing poisonous effects.—After *Pharm. Journal.*

Oil of Evodia, a New Deodorant for Iodoform.

H. Helbing, of London, speaks of the essential oil obtained from *Evodia fraxinifolia* as able to overcome the odor of iodoform whether in substance or solution. Its own odor is agreeable and powerful, and in practice the addition of two drops to the ounce is sufficient to obtain complete obliteration of the odor of iodoform. Christy, in No. X. of "New Commercial Plants," says that Don probably was first to describe it in "Prodromus Floræ Nepalensis," in 1825, as *Rhus fraxinifolium;* a large tree native to Nepal. According to Sir William J. Hooker ("Icones Plantarum," 1848), it is referred to Blume's genus *Philagonia*, N. O. Terebinthaceæ. Hooker and Bentham, more recently ("Genera Plantarum"), include it in the genus *Evodia*, N. O. Rutaceæ.

The fruit consists of three or four carpels placed together in shape like a star; these are brown exteriorly and dotted with small warty points. Each carpel contains one seed of roundish heart-shape, black, diam. 4–5 millim. The fruit yields, on distillation, about 4% of thin essential oil of pale yellow color, s. g. not exceeding 0.840°, odor similar to bergamot, pungent taste, and soluble in alcohol and ether.—*Pharm. Jour.*

Laboratory Tables.

Though it has its drawbacks, there can be little doubt that the best material for a laboratory table-top is wood. Other materials may be better for special purposes, but for general use wood is best, and among woods teak is to be preferred. The wood ought never to be varnished or painted, as the action of alkalies and strong acids on the preparations employed renders the table unsightly. The now common custom of saturating the wood with melted paraffin is not open to the same objection, and has, indeed, many advantages. The paraffin renders the wood impervious to water, and, on account of its chemical indifference, it prevents the table being seriously attacked by sulphuric acid or caustic soda, which will sometimes be spilled even in the best regulated laboratories. Probably the chief objection to paraffin is that it melts and adheres to any warm vessel or apparatus that may chance to come in contact with it. In this way a new source of error is introduced into analyses, as the slight coating of paraffin on a capsule or crucible lid being invisible may be forgotten to be removed by ignition or otherwise before weighing. Of course, it is easy to say, "Never lay any vessel you intend to weigh on the table;" but a possible source of error is present all the same. My own view of the matter is, that for qualitative and general work it is well to have the tables paraffined, while for quantitative and finer work it is better to have the surface clean.

Slate is objectionable as a material for tables, firstly, because of its antipathy to glass vessels; secondly, because it is not readily pierced or cut; and thirdly, because it is cold to the touch and cold to look at. Yet it is the best kind of surface on which to place the combustion furnace, air-bath, and similar apparatus. In like manner, although lead is not to be commended for general use, it is a good plan to have one table covered with it, and so arranged that any liquid falling thereon may collect at one end, and so be run off into the waste. All distillations should be conducted on this table, which is not only a convenient arrangement for getting rid of the water used in condensing, but is also a security against danger when working with inflammatory liquids.

The attempt to convert each working bench into a sort of complete laboratory seems to be a mistake, however heretical this view may appear to some. To have tank water, distilled water, steam, gas, draught, and sink "laid on" at each bench produces an unnecessary and expensive complication of pipes; and the more pipes and stopcocks, the more plumbers and repairs. Simplicity is a great principle in the arrangement of laboratories, as in most other matters. All materials and apparatus required by each worker should be within easy reach, but not necessarily at his own particular table, which should, indeed, only be supplied with those requisites the absence of which would produce positive inconvenience.—D. B. Scott, in *Chem. and Drugg.*

Selections from the Unofficial Formulary of the British Pharmaceutical Conference.

AT the late meeting of the British Pharmaceutical Conference, the Committee on the Unofficial Formulary presented their report, which contained formulas for thirty-seven preparations. Several among these are not used in this country at all; others are either officinal in the U. S. Ph., or are usually prepared by different methods, or are already provided for by the American Committee on National Formulary, which is about to be published. The following, however, appear to present features of interest, and are therefore put before our readers.

The weights and measures are those recognized by the British Pharmacopœia.

The members of the Formulary Committee were: W. Martindale, *Chairman;* W. A. H. Naylor, *Secretary.* A. C. Abraham, T. Greenish, T. B. Groves, T. Maben, N. H. Martin, R. Reynolds, C. Symes, J. C. Thresh.

1. *Emulsio Olei Morrhuæ.*

Emulsion of Cod-Liver Oil.

Cod-liver Oil	40 fluidounces
Tragacanth, in powder	200 grains
Tincture of Benzoin	½ fluidounce
Spirit of Chloroform	½ "
Glycerin	2 fluidounces
Oil of Cassia	2 fluidrachms
Distilled Water	a sufficient quantity

Place the oil in a dry Winchester quart, and pour in the tragacanth, tincture of benzoin, and spirit of chloroform, previously well mixed; agitate briskly for a minute; then add all at once 1 pint of distilled water and agitate as before. Lastly, add the essential oil, glycerin, and sufficient distilled water to produce 4 pints. Shake vigorously for a few minutes.

Dose 2 to 8 fluidrachms.

Note.—Tincture of Quillaia is directed to be prepared from 2 oz. of quillaia bark (in No. 20 powder) and enough alcohol to make 1 pint.

2. *Injectio Curare Hypodermica.*

Hypodermic Injection of Curare.

Curare (the South American Indian Arrow poison)	5 grains.
Distilled Water	a sufficient quantity.

Reduce the curare to powder in such a way as to prevent its coming in contact with the naked hand, and add distilled water to form a thin paste. Transfer to a small funnel plugged with absorbent cotton, and gradually pour upon it distilled water until 1 fluidrachm is obtained. If the injection be required in haste, proceed in the following manner:

To the 5 grains of curare reduced to powder add 1 fluidrachm of distilled water, throw on a filter, and when the liquor ceases to drop, pour over the contents of the filter distilled water sufficient to produce 1 fluidrachm.

Dose, 1 to 6 minims.

Note.—The formulary defines curare as a dry inspissated extract of varying composition, prepared in South America from the bark of different species of Strychnos (principally *Strychnos toxifera* Schomburgk) and other plants.

3. *Linimentum Opii Ammoniatum.*

Ammoniated Liniment of Opium.

Soap Liniment	6 fl. oz.
Compound Camphor Liniment	6 "
Tincture of Opium	6 "
Belladonna Liniment	1 "
Stronger Solution of Ammonia	1 "

Mix and filter.

4. *Liquor Ferri Hypophosphitis Compositus.*

Compound Solution of Hypophosphite of Iron.

Hypophosphite of Calcium	320 grains.
Hypophosphite of Sodium	320 "
Hypophosphite of Magnesium	160 "
Sulphate of Iron	240 "
Carbonate of Sodium	320 "
Hypophosphorous Acid, sp. gr. 1.36	1 fluid oz.
Distilled Water	a sufficient quantity.

Dissolve the hypophosphites of calcium, sodium, and magnesium in 8 oz. of water.

Dissolve the sulphate of iron and carbonate of sodium in separate portions of water; mix and wash the precipitated carbonate of iron with sweetened water until the washings cease to give a precipitate with solution of nitrate of barium.

Transfer the moist precipitate to the solution of the hypophosphites, and add gradually the hypophosphorous acid. Make up to 1 pint by the addition of distilled water.

Each fluidrachm contains about 2 grains each of hypophosphite of magnesium, and 1½ grains of hypophosphite of iron.

Dose, ½ to 2 fluidrachms.

The preceding formula is criticised in an editorial of a subsequent number of the *Chemist and Druggist*, as follows:

"It will be noticed that the unofficial formula directs the iron hypophosphite only to be made extemporaneously, and this is done by dissolving freshly precipitated ferrous carbonate in hypophosphorous acid. This avoids contamination of the solution with calcium sulphate. . . .

"The process which the Formulary Committee have adopted is superior to other methods for making a solution of ferrous hypophosphite. Syrups and liquors made in this way remain much longer free from deposit than when made by the sulphate method, and the proneness to formation of sulphuretted compounds which characterizes the latter method is done away with. In several respects the details of the formula require modification. In the first place, the carbonate of sodium is much in excess. The amount of carbonate of sodium required to decompose 240 grains of sulphate of iron is 246 grains. The excess may do no harm, but it does no good. Then, hot water is not directed to be used to dissolve the sulphate and carbonate; cold solutions give a mixture which filters very slowly, so that oxidation is greatly favored. The best plan is to dissolve each salt in half a pint of boiling water (the iron solution is the better for a few drops of dil. sulphuric acid to make it clear); then pour the soda solution into the iron solution, stirring constantly, cover, and allow to settle; decant the supernatant liquid, throw the precipitate on a filter, and wash with hot water. We question if the addition of sugar to the wash-water is an advantage. The formula directs the washed precipitate to be transferred to the solution of the alkaline hypophosphites, but this is somewhat clumsy; it is better to dissolve it in the acid and 3 oz. of water, then to mix this solution with the other, filter and make up to 1 pint with water. In Churchill's own *liquor* there was 1 grain of free hypophosphorous acid in each fluidrachm, but the Formulary provides only for ¼ minim, nearly four-fifths of the acid being taken up by the iron. This is rather an improvement so far as taste is concerned."

5. *Liquor Picis Carbonis.*

Solution of Coal Tar.

Prepared Coal Tar	4 oz.
Tincture of Quillaia	1 pint.

Digest at a temperature of 120° F. for two days, allow to become cold, and decant or filter.

Note.—Prepared Coal Tar is directed by another formula to be obtained by placing commercial coal tar in a shallow vessel, and heating at a temperature of 120° F. for one hour, stirring frequently.

6. *Pilula Ferri (Blaud).*

Iron Pill (Blaud).

Sulphate of Iron	60 grains.
Carbonate of Potassium	36 "
Sugar, in powder	12 "
Tragacanth, in powder	4 "
Glycerin, in powder	2½ minims.
Distilled Water	2½ "

Reduce the sulphate of iron to fine powder, add the sugar and tragacanth, and mix intimately. Finely powder the carbonate of potassium in another mortar, and thoroughly incorporate with it the glycerin and water. Transfer this to the mortar containing the sulphate of iron, beat thoroughly until the mass becomes green and assumes a soft, pillular consistence, and divide into twenty-four pills.

Each pill contains about 1 grain of ferrous carbonate.

Dose.—1 to 3 pills.

7. *Syrupus Butyl-Chloral.*

Syrup of Butyl Chloral.

[Syrup of Croton-Chloral.]

Hydrate of Butyl-Chloral	320 grains.
Syrup, sufficient to produce	1 pint.

Dissolve the hydrate of butyl-chloral in the syrup previously made hot.

Dose.—1 to 4 fluidrachms.

8. *Syrupus Calcii, Manganesii et Potassii Hypophosphitum.*

Syrup of the Hypophosphites of Calcium, Manganese, and Potassium.

Hypophosphite of Calcium	320 grains.
" Manganese	160 "
" Potassium	160 "
Boiling Distilled Water	4 fluidounces.

Rub together in a hot mortar till nearly dissolved, and add syrup sufficient to produce 1 pint.

Dose.—½ to 1 fluidrachm.

Of this formula, the editor of the *Chemist and Druggist* says: "This formula is one which we can say little good of, although with a slight modification an excellent syrup can be made of the ingredients. The weak point in the

formula is the direction to dissolve the solids (640 grains) in 4 fl. oz. (1750 grains) of boiling water. This, on the face of it, is a mistake. The solubility of calcium hypophosphite in boiling water is 1 in 6 (the Br. Ph. erroneously states that this is the factor for cold water, whereas 1 in 6.8 is more correct. [The U. S. Ph. has the correct figures].)

The ratio between 320 grains of this salt and 4 fl. oz. of water is 1 to 5.47, so that if we were to omit the other salts we would yet fail to effect complete solution, and we find this to be the case in practice. The formula has been slightly amended in the second edition of the Formulary, the word "filter" being inserted after "dissolved"—surely it is not intended to filter out the undissolved hypophosphite! We have succeeded best by adding the syrup (hot) to the mixture of water and hypophosphites, but even thus there is slight crystallization when the syrup cools. The easiest method is to dissolve the hypophosphites in 10 oz. of boiling water, filter, and dissolve 10 oz. of sugar in the filtrate, strain, and add syrup to 1 pint.

9. *Syrupus Cascara Sagrada.*

Syrup of Cascara Sagrada.

Liquid Extract of Cascara Sagrada	4 fluidounces.
" " Liquorice	3 "
Carminative Tincture	2 fluidrachms.
Syrup, sufficient to produce	1 pint.

Mix.

Dose.—1 to 4 fluidrachms.

10. *Tinctura Carminativa.*

Carminative Tincture.

Cardamom Seeds, bruised	600 grains.
Stronger Tincture of Ginger	1¼ fluidounces.
Oil of Cinnamon	100 minims.
Oil of Caraway	100 "
Oil of Clove	100 "
Rectified Spirit, sufficient to produce	1 pint.

Macerate the cardomoms in 15 fl. oz. of the spirit for a week, decant, express, and dissolve the oils in the mixed tinctures, making up to 1 pint with rectified spirit.

Note.—Stronger Tincture of Ginger is made by exhausting 10 av. oz. of ginger with enough alcohol to make 20 fl. oz. (Brit. measure), that is, about half the strength of a fluid extract.

11. *Tinctura Strophanthi.*

Tincture of Strophanthus.

Strophanthus Seeds, in No. 30 powder and dried at 110° F.	1 ounce.
Stronger Ether,	
Rectified Spirit, each, a sufficient quantity to make	1 pint.

Pack the seeds in a percolator, and moisten with stronger ether (sp. gr. 0.720). Macerate for twenty-four hours, then allow percolation to proceed, continuing the addition of ether until the fluid passes through colorless (about 8 or 10 fl. oz. suffice). Remove the marc from the percolator, and dry it, gradually heating it to 120° Fahr. Again reduce it to powder, repack in the percolator, and moisten with rectified spirit.

Macerate for forty-eight hours, then pour on successive quantities of spirit, percolating slowly, until 1 pint of tincture is obtained.

Dose.—2 to 10 minims.

Note.—Strophanthus seeds are defined thus: "The seeds, deprived of the apical hairy appendage, of a species of *Strophanthus* growing in Eastern Africa, and usually referred to *S. Kombe* Oliver. The seeds are plano-convex, of a grayish-green or pale brown color, 18 millimeters long and 4 millimeters broad in their greatest diameter, rounded at the base and tapering at the apex, covered with appressed silky hairs, which become much shorter toward the apex of the seed, and furnished on the flat side with a longitudinal ridge, disappearing below the middle of the seed."

Note on Cutaneous Anæsthesia.

Dr. E. Jackson, of Philadelphia, in a paper in the *Medical News* of Sept. 3d on the action of stenocarpine, speaks of something which is worthy of attention by those who employ either this substance or cocaine for cutaneous anæsthesia. Referring to reported failures by Dr. Knapp to obtain abolition of sense of pain, Dr. Jackson expresses the opinion that the preliminary washing of the skin with soap and water was the cause of failure. To confirm this opinion, Dr. Jackson washed the flexor surface of his forearm with soap suds and followed it by an application of the drug. Analgesia had not resulted after a half-hour had elapsed. He then neutralized the residue left on the surface by a dilute acid solution, and in ten minutes notable anæsthesia was produced. It is further stated that, in the case of a cocaine solution, contact with air containing free ammonia will cause precipitation of the alkaloid.

As careful washing with the aid of soap is now a preliminary to all operations with aseptic precautions, the importance of this observation is evident.

How to Manage a Kerosene Lamp.

It may seem superfluous to give instructions as to the trimming of a lamp, every one being already supposed to know how to perfom this very simple operation; but our experience teaches us that many users of lamps do not get anything like the satisfactory results from their lamps that they might if only a little more care and attention were bestowed upon them.

Before proceeding to detail the mode of procedure in the filling and trimming of a lamp, we may say that if your lamp seems to be giving a poorer light than it once did, before complaining of its quality examine the following points, as in all probability you will find the trouble to be caused by one or more, perhaps by all of them.

The Vessel.

Can the reservoir be dirty? Has it been emptied recently?

Every lamp should be emptied completely once a week, and the oil in the bottom thrown away. See that your lamp be kept free from water and dirt.

Is your vessel filled frequently?

Lamps should be filled every day, so that you begin the work of the evening with a full fount.

The Burner.

Is the burner clean?

The life of the flame is the air it sucks in through the holes in the disc around the wick tube. If the flame is smoky, or sickly, see whether these holes are not clogged or gummed up. If so, then boil the entire burner for a few moments in soda and water, and mark the change.

Is the wick tube large enough?

The wicks now made are more loosely woven, and are thicker than they have been in the past. See that the tube does not so bind the wick as to check the oil in mounting to the flame. The tube should be large enough to allow the wick to be moved up and down freely.

The Wick.

Is the wick worn out?

We do not mean burned out, but worn out. The wick is the pump to lift the oil from the fount to the flame. It may become clogged. Put in a new wick at least once a month. Wicks are now so cheap that the expense is trifling. Dry a new wick before putting into lamp.

Does the wick need trimming?

If so, do not scrape it off as some do, it injures the wick and fills the burner with dirt. Cut it evenly across the top. Trim the wick every day, and you will be amply repaid for your trouble.

The Oil.

Never use common oil.

Even with a good lamp, good burner, and good wick, you cannot have a good light without good oil.

The Manipulation of Lamp.

For the sake of clearness we put our remarks upon the subject of the manipulation of lamps in the form of rules.

1.—See that you get the right size wick, not too narrow or too thin. It should comfortably fill the wick case both in width and thickness.

2.—Thoroughly dry your wick. This is most important, or the oil will not flow up to keep the flame supplied. If when the wick is turned up to its full power, the flame gradually diminishes in size, the cause is almost sure to be dampness of wick.

3.—Before putting a new wick into your burner, cut it evenly across the top with a very sharp pair of scissors, taking care not to jag the edges, then insert it evenly into the tube.

4.—Cut the wick perfectly level with the top of the wick case. The perfect flame of a paraffin burner should be tulip-shape and square at the top, it should not be pointed in the centre. If the flame be "forky," a little may be taken off the corners of the wick

5.—In cutting the wick of a lamp that is in use, remove merely the charred part that will cut quite easily.

6.—Fill the oil-vessel each time before using.

7.—To light your lamp, do not turn your wick above the opening in the cone; touch the wick with a lighted match or taper, by putting in through the opening in the cone. Our reason for this rule is that many persons are in the habit of turning it some way above the cone in order to see it, and then having lit it, the wick is not unfrequently left burning above the cone, instead of being turned below it, as it should be; the consequence being a bad light and offensive smell. The wick of every burner that is fitted with a cone should be some way below it, and quite invisible.

8.—When first lit, do not turn up the flame to its full height.

9.—In extinguishing a lamp, use the extinguisher. If, however, the lamp has not one fitted to it, lower the flame, and blow sharply *across* the top of the chimney.—*Br. and Col. Drug.* From "Petroleum: Valuable Hints to those who Use it."

New Hampshire Pharmaceutical Association.

THE fourteenth annual meeting of this association was held at the Fabyan House, White Mountain, Sept. 27th and 28th, and was the most successful in all respects ever held by the Society. Eleven new members were admitted, making the present number eighty-five, or about one-third of the registered pharmacists in the State. The Treasurer's report showed the Association out of debt and $600.12 in the treasury. An essay on "The Manufacture of Native Fruit Wines" was read by the Secretary, C. B. Spofford, and the following officers for the year 1887–88 were elected: President, U. S. Whitman, Nashua; 1st Vice-President, G. F. Underhill, Concord; 2d Vice-President, Ward P. Whitcher, Lisbon; Secretary, C. B. Spofford, Claremont; Treasurer, F. A. James, Manchester; Auditor, P. H. Kelley, Manchester. Ex. Committee, J. D. Burbank, Manchester; A. P. Fitch, Concord; C. B. Spofford, Claremont.

Trips to Mt. Washington and a drive through Crawford Notch constituted the pleasures of the occasion, and all voted it a most enjoyable gathering.

C. B. SPOFFORD, Secretary.

Concentrated Aqueous Solution of Boric Acid.

SCHOLZ has found that the solubility of boric acid in water may be greatly increased by the presence of small quantities of a seemingly indifferent body, namely *magnesia.*

When 1 Gm. of magnesia is mixed with 75 Gm. of water, and boric acid gradually added until the clear solution no longer became turbid on boiling, it was found that 12.4 Gm. of boric acid were consumed up to this point. But, on adding even quite a minute quantity of alcohol, this was found still to produce a strong opalescence. The quantity of boric acid was therefore, gradually increased, and the appearance of opalescence ceased after 3.1 Gm. more had been added. The resulting acid liquid now contained 1 Gm. of magnesia and 15.5 Gm. of boric acid. On evaporating the solution, it leaves a residue which, when powdered, forms a white, sweet-tasting powder, soluble in 4 parts of hot water.

The same preparation may be made by taking 2.33 Gm. of carbonate of magnesium instead of 1 Gm. of magnesia.—After *Pharm. Zeitsch. f. Russel.*, No. 34.

Note by ED. AM. DRUGG.—The preceding solution has been tried by one of us for the purpose of impregnating gauze, and been found to work satisfactorily. It might be called:

Liquor Magnesii Boratis.

Magnesia	100	parts
[or Carbonate Magnesium	233	"]
Boric Acid	1,550	"
Water	7,500	"

Mix them, and heat in a water-bath until perfect solution has been effected.

This seems to be about the composition of the *antifungin* now offered in the European market.

Amylene Hydrate.

AMYLENE HYDRATE, lately introduced as an agent for producing sleep, was classed by Wurtz as a tertiary alcohol. It is a colorless, limpid liquid, boiling at 100° C. and has a s. g. of 0.81. It dissolves in 8 parts of water, and is miscible with ordinary alcohol in all proportions. Its flavor and odor resemble camphor and peppermint. The presence of fusel oil or impure potato-spirit renders its therapeutic use dangerous.

Four grammes given to an adult are said to cause a calm, refreshing sleep for six to nine hours. Its hypnotic action is not so strong as that of chloral hydrate, but exceeds that of paraldehyde. Over the former it has the advantage of less liability to disturb the action of the heart, while it requires a smaller dose than that of paraldehyde, and is more easily taken. The relative proportion of dose is that of 1, 2, and 3. It causes no disturbance of the digestive organs and may be used by enema.

The amylene hydrate made by Kahlbaum, of Berlin, is that recommended by Dr. von Mering in the *Pharmaceutische Post.*

Testing fixed Oils for Copper.

J. OLDHAM BRAITHWAITE reports that, having occasion to test a sample of olive oil for copper, he first tried incineration of the oil and subsequent analysis of the ash, but he found the rate of incineration so tedious that he cannot recommend it. He finally adopted the following method:

Pour about 10 C.c. of solution of potassium ferrocyanide into a test tube and add to it an equal volume of oil. Shake well for a few minutes and allow to stand. If copper be present, a bright reddish pink precipitate is formed at the juncture of the two liquids in from one to twelve hours, according to the amount of the metal present.

In order to test the delicacy of the reaction, it was found that when five milligrammes of pure dry oleate of copper (equivalent to 0.00056 gramme Cu.) were dissolved in 100 grammes of oil, a distinct reaction was given by this test in twelve hours.—*Pharm. Journ.*

The Cork-Tree in the Forests of Tunis.

THE forests of Tunis, which cover an appreciable part of the surface of the country, were, until the French occupation, subject to no supervision, and suffered from the many causes resulting from the want of that supervision. In 1883, the French, alive to the importance of preserving what remained of these forests, which are the property of the State, placed them under the management of a separate department, which has carefully explored their extent, and conclusively demonstrated that they are an important element of national wealth.

The explorations of the new department have resulted in the division of the forests into two main groups; one consisting of the cork tree and deciduous oak, locally known as "Zen," covering the north-western angle of Tunis, where it abuts on the Algerian frontier and the sea, inhabited by the Kroumiers, and separated from the rest of Tunis by the river Mejerdah. These trees grow in a stratum of sandstone, which again reposes on the upper chalk, and they completely disappear where the latter stratum crops to the surface. They cover an area of about 360,000 acres, on 330,000 acres of which flourishes the cork-tree, and on 30,000 the "Zen." It is to the cork-forest that the attention of the new administration has been mainly directed. They are situated in a country with a very sparse population, dwelling in huts formed of the branches of trees. Their number is estimated at 12,000 souls, or only one individual to thirty acres.

It was open to the French administration, which wields the authority of the Bey, to adopt one of the three following systems in dealing with the woods and forests, viz., their sale, their concession for fixed periods, or their management by the State. The last was chosen as the system best adapted for their preservation and extension, particularly as it was held to be of paramount importance to favor the increase of rainfall in the country; the quantity of which is supposed to be intimately connected with the extent of the forests. That they were more extensive in the times of the Romans, and that they conduced to augment the annual rainfall, may be inferred from the discovery of numerous aqueducts among hills which are now absolutely denuded of trees and destitute of springs.

Much has been done during recent years in improving the condition of these cork-forests. Roads have been cut through them, and at stated intervals, spacious alleys have been frayed to serve as a means for arresting the march of the destructive fires which frequently ravage them. Above all, much progress has been made in barking cork-trees, an operation which consists in stripping the rough bark of the trunks of the trees, to the height of five or six feet from the ground. This virgin bark is without value, and only for ten years after the trees have been robbed of it is the inner bark available for commercial purposes, the trees giving a crop of cork every ten years. To meet the expenses incurred in these operations, there were available the sums accruing from the sale of trees already felled, and of the bark of the "Zen" for tanning. The director of woods and forests has drawn up an estimate of the receipts and expenses of his department for three consecutive decennial periods, according to which in twenty years, or at the commencement of the third decennial period, the anticipated expenditure per annum is £27,000, while the expected receipts are £96,000, leaving a profit of £69,000. The above calculation regards the cork-forests only which grow on the sandstone to the North of the Mejerdah River, in the region lying between the Algerian frontier and Bizerta. Little has been done towards working the less valuable forests to the South of that river. An experiment has been made in planting with trees a small tract of mountain land near Hammam-el-Enf, some ten miles to the east of the town of Tunis. The operation consists in digging holes at short distances, and in dropping in each a few seeds of the pine tree. Several hundred acres have thus been planted with tolerable success, at an expense of £4 10s. an acre.

The worst enemies of the forest are goats. Some French colonists have taken steps to exclude these animals from their estates, and the result has been that shrubs which never attained the height of more than two or three feet have in four or five years assumed the dimension of trees. This is particularly apparent in the large domain of Enfida, near Susa, belonging to the Franco-African Company, where the thuja, which covers much of that domain, from a dwarf shrub, has now, within the space of six years, attained a height of twenty to twenty-five feet.—From a Report of Consul Sandwith, in *Pharm. Journ.*

Mr. Thomas Greenish, of England, visited this country during September and, after attending a portion of the session of the Medical Congress held in Washington, visited Detroit, Ann Arbor, and Chicago.

The Hungarian Pharmacopœia, recently issued, has the text in Latin and Hungarian, in parallel columns.

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EDITORIAL.

Stenocarpine?

SINCE the first appearance of this supposed new anæsthetic (see our September number, page 162) we have taken much pains to put ourselves in possession of all accessible facts calculated to throw light upon this rather mysterious proximate principle. The original story of the discovery of the anæsthetic properties of the leaves of the tear-blanket tree is not such as to justify an unhesitating belief in its bona-fide character. A poultice made from the leaves of this tree is said to have rendered a tumor on a horse's foot so insensible to pain that it could be lanced without the operation being apparently felt by the animal. Now, even a poultice of coca leaves would be unable to accomplish this, so far as we know the properties of coca, unless the extract or infusion (or better still, the solution of the alkaloid) could reach the tissues and vessels below the skin. This and other circumstances have, indeed, from the date of its first announcement, raised our suspicions regarding the genuineness of the discovery, and we are to-day still in the same position. We have tried to obtain a specimen of the supposed alkaloid *stenocarpine*, but find that the manufacturers supply it only in two-per-cent solution, under the plea that the isolation of the alkaloid, which is said to be very delicate and liable to decomposition, is a very difficult and expensive operation. The manufacturers acknowledge that the name originally chosen for the substance, viz., stenocarpine, is not a proper one; they also acknowledge that the plant which formed the subject of the first report is a species of *Gleditschia* (namely, *Gleditschia triacanthos* L.), and, therefore, now prefer the name *gleditschine* for the substance. Whether this or the former name will long endure as the title of the mysterious alkaloid contained in the two-per-cent solution is a question which will soon be solved. Of course, we have the most implicit confidence in the good faith and bona-fide results of the medical gentlemen who have reported their experiments with the drug in the medical journals. But, until the missing link in the chain of evidence is supplied, namely, the proof that some proximate principle *actually* contained in the leaves of Gleditschia triacanthos is the substance with which these experiments were made, so long shall we look upon the whole matter with suspicion.

We have corresponded with several gentlemen in the Southern States in reference to this matter and all the information thus far obtained seems to confirm us in our present views. One of the communications we have received is presented on page 201.

WHEN our colleges of pharmacy are ready to make their choice of prizes for their next graduating class, we commend to their consideration the merits of Millspaugh's "American Medicinal Plants," the completion of which is noticed in this number. It is a work which will be prized by every student, but which many may not feel able to purchase at the outset of their career as practising pharmacists, and it has the advantage over gold and silver medals that its possessor will have something from which he may derive both pleasure and profit, and which may serve to stimulate him to a continual study of a science, a knowledge of which is important for every pharmacist, but which rarely receives attention after the completion of his college course.

College faculties should appreciate the duty of so educating their students that they will acquire something more than a knowledge of the essential details of their future business, and one of the most important is a love for some particular branch of science which will make an original observer of each one of them. This is the way in which the character of the entire profession is most certain to become elevated through its influence upon each individual.

IN a paper read by Prof. Leech, M.D., F.R.C.P., before the British Pharmaceutical Conference, at Manchester, on the 31st of August, the following expressions occurred:

"It is felt by the members of our profession with increasing force that many of the conflicting results recorded by therapeutists, many of the failures met with when successes are expected, are connected with difference in strength in the drug employed. The want of reliance on the uniformity of our present official preparations is leading medical men to employ the preparations of those large houses in America and Germany as well as in England, who guarantee that their compounds are of a definite strength, and as the profession gets more and more imbued with the teachings of pharmacology, the search after preparations of fixed and definite composition will become general. *If pharmacy is to hold its own, each pharmacist must be in the future the guarantor of the purity of the medicines he dispenses, not the mere distributor.* The gain to pharmacists which will result from the acceptance of this position will, I believe, more than counterbalance the loss resulting from the transference to other hands of a certain portion of the work formerly devolving on them. Should the position be declined, it will be taken up by some other class, and with it may be transferred all other work which requires scientific training. The increased knowledge required will undoubtedly lead to an increase of educational requirements in science, and narrow the portal through which pharmacists must pass before entering on the work of their life. Especially in organic chemistry will a thorough training be necessary."

THE attention of readers is asked to the circular issued by the New Jersey Pharmaceutical Association which will be found in our outside columns. It relates to an evil which is doing more than cutters, competition, or carelessness to injure the business of pharmacy at the present time. Unfortunately the class of dealers who make liquor-selling a feature of their business are not easily reached by professional journals—since they rarely take them unless they are sent to them gratuitously—and it is even less common to find them among the active members in pharmaceutical societies. The men who *do* interest themselves in advancing the interests of pharmacy or the welfare of the public do *not* as a rule retail drinks.

INDIANA pharmacists are not inclined to be discouraged at the failure of previous efforts to secure enactment of a pharmacy law, but are again in the field and preparing for the next session of the Legislature. It was claimed, last year, that the failure to secure a desirable law was largely due to opposition on the part of jobbers who saw in the proposed law a measure which would limit the number of their prospective customers.

Collodion may be prepared most expeditiously, according to Chevreau, by first placing the gun-cotton into ether, and when it is thoroughly saturated, adding the alcohol. Solution is then almost instantaneous.

Asiminine, derived from the seeds of *Asimina triloba*, is amorphous, colorless, tasteless, insoluble in water, but readily soluble in alcohol or ether. Nitric acid colors it and its salts deep red, then violet.

A RUSSIAN physician states that he has succeeded in relieving toothache caused by caries of the teeth by making the patient rinse the mouth every half-hour with a dessertspoonful of a 20 per cent solution of permanganate of potash, taking care to hold the liquid in the mouth for some minutes.

Bismuth Poisoning.—A case recently occurred in France, in which it is alleged that the application of pure subnitrate of bismuth to ulcers following a burn, at intervals of two days, caused sore throat with false membrane on the uvula, palate, and tonsils, foul breath, vomiting, and loosening of the teeth.—*Br. Med. Jour.*

Iodol Wax.—The name of this cement for hollow teeth, which Mr. Williams made known in the *Journal of the Dental Association*, has found its way into the German and Austrian pharmaceutical papers as "Jodolwachs." It is made in Vienna as follows: Solid paraffin, 7.5; spermaceti, 7.5; iodol, 4.0; carmine, 0.06, and yellow wax, 12.0 parts.

Detecting Gas-Leakages.—Paper saturated with a solution of chloride of palladium has been recommended for detecting gas-leakages. The paper must be used wet. In the case of street mains, pieces of it are placed in iron pipes (¼ in. diam.), and these inserted at intervals in the vicinity of the leakage. The gas reveals itself by coloring the paper brown or black.

Antipyrin has recently attracted attention as a substitute for morphine in the relief of pain. Prof. Germain Sée advises its use hypodermically, owing to the avoidance of disturbance of the digestive organs. Seven and a half grains are used as a dose, dissolved in an equal amount of distilled water. For a few moments the injection causes a painful sensation of tension, followed by a relief of all pain. Its use is said to be unattended by vertigo, vomiting, sleepiness or the excitation characteristic of morphine.—*Monthly Magazine.*

Effect of Freezing upon Milk.—Kaiser and Schmieder (*Bied. Centr.*) found that when milk is frozen slowly, the ice contained the greater part of the fat and the fluid portion most of the casein, milk, sugar, and salts. In that which was quickly frozen and partially thawed, the fat was equally distributed. If a dealer whose milk has been frozen pours off the clear fluid which underlies the ice, he is liable to a suspicion of adulteration on the one hand, or will deliver milk above the standard on the other. Milk which has been frozen should be well thawed and shaken up, and not be sold while any ice is visible.—*Pharm. Jour.*

Newly-described Blistering Beetles.—J. O. BRAITHWAITE described before the Br. Pharm. Conference two species of blistering beetles from South Africa, *Mylabris bifasciata* and *M. lunata*, the former of which is extremely rich in cantharidin, containing more than twice as much as *Cantharis vesicatoria*. The latter contains less of the blistering agent.

M. bifasciata is said to be sufficiently abundant at the Cape of Good Hope to be available as a source of cantharidin. In discussing the paper, Mr. Moss stated that another species of *Mylabris* is at present used as an important source of cantharidin.—*Pharm. Jour.*

Stencil Ink.—The *Chemist and Druggist* says that a good basis for stencil ink is made of the following materials: Shellac, 2 ounces; borax, 2 ounces; water, 25 fluidounces; and gum arabic, 2 ounces. Boil the borax, shellac, and some of the water until they are dissolved, add the gum arabic, and then withdraw from the fire. When the solution has become cold, complete the 25 fluidounces by addition of the rest of the water. For black ink fine lampblack is used; for red ink, Venetian red; and for blue, ultramarine and chalk. Add to these the basis above described in sufficient quantity to make the mixture of proper consistency.

A Mucilage Substitute.—In a time when gum arabic is difficult to obtain, and even then only at a high price, it behooves the chemist to look about for suitable substitutes. A good mixture for adhesive labels, and which is also cheap, can be made according to this formula:—Dissolve 14 oz. sugar in 2 pints of water, heat the solution to boiling, and add 3½ oz. of calcium hydrate; stir assiduously and allow the mixture to settle during several days. Draw off the viscous supernatant liquid, and mix it with a hot glue solution, in the proportion of 3 parts of the former to 1 of the latter. The resulting liquid forms an excellent adhesive mucilage, and if to it a small quantity of salicylic acid be added, it will keep for years.

South American Cinnamon.—At the exhibition of South American products, held at Berlin in the early part of this year, some cinnamon bark was exhibited which Professor Tschirch considered fully equal in aroma and sweet taste to the Ceylon cinnamon. It was in pieces about two inches broad and three-eighths of an inch thick. The essential oil prepared from it by Tschirch could not be distinguished from that of the Ceylon bark, though the yield was inferior. This is due to the fact that the pieces are taken from older branches, which have a bark rich in stone-cells, and therefore poorer in oil-cells. It is very low in price and should have a promising future. It was exhibited by Guimares & Valente, of Pernambuco.

Sulphurous Fumigations.—The Hâvre Congress of Hygiene have agreed to publish a set of directions for disinfecting, for the benefit of doctors or masters of infected vessels. Brimstone, broken up in small pieces, should be placed in broad and shallow earthenware or cast-iron dishes, of about 1 liter capacity. The vessels should be of one piece, without solder, and, as a precaution against fire, should be placed in tubs holding 2 or 3 in. of water. To light the brimstone, either sprinkle it with a little alcohol, or tip it with a little cotton wadding dipped in the same liquid. For each cubic meter of room, 30 grammes of sulphur are requisite, or about 1 oz. for each 40 cubic feet, all the openings being kept tightly closed for twenty-four hours.

An Emetic in Melon Root.—Heberger (*Rép. de Pharm.*) and Torosciviez (*Bolletino Farm.*) describe a bitter substance, resembling emetine, extracted by means of alcohol from a watery extract of melon root; notably from the roots of wild plants. It occurs in compact, brownish masses having a shining fracture; deliquescent; it does not show reaction with acids or alkalies; imparts a color to ether and is readily soluble in alcohol, from which it may be precipitated by acetate of lead or infusion of galls. Solutions of ammonia and potassa dissolve it readily, and it may be precipitated by the addition of an acid. This precipitate is not very soluble in water. It is pungently bitter and nine centigrammes will cause vomiting.

New Analysis of Hunyadi Spring Water.—A new analysis of the Hunyadi Lajos Bitterquelle has just been made at Vienna by Dr. Godeffroy, professor of chemistry, and member of the Pharmaceutical Society. He gives the specific gravity of the water from this spring, at the temperature of 15° C., as 1.047, and in 1,000 parts of the water by weight he finds: Sulphate of magnesia, 31.61; sulphate of soda, 15.71; sulphate of potash, *a trace;* sulphate of lime, 1.68; chloride of sodium, 1.37; carbonate of soda, 3.12; carbonate of iron, 0.0067; carbonate of lime, 0.065; carbonate of magnesia, 0.029; silica, 0.002; alumina, 0.006 = total solid contents of 1,000 parts of the water, 53.61; This analysis, which is dated "Vienna, 6th July, 1887," appears to have been very carefully made and accurately calculated.

The Preparation of Suppositories.—M. Leboutte communicates to the *Bull. Soc. Roy. de Pharm.* the following method of making suppositories. He says, "I first powder in a mortar the cacao butter, previously reduced to raspings by a sharp instrument. I then incorporate the prescribed medical agents, whether they be powders like idoform, coacine hydrochlor., etc., or extracts such as belladonna, opium, and others, with the cacao butter. By the addition of a small quantity of powdered soap, and a few drops of water, the massing of these ingredients is readily effected; a perfectly homogeneous mixture being produced which can be easily divided into portions of the required size and strength, and made up into the ordinary cone-shape." M. Leboutte further remarks that, considering the difficulty of mixing aqueous and alcoholic extracts with the melted fat, his plan possesses an additional advantage. He finds five minutes sufficient for the preparation of twelve suppositories.

The Preparation of Antiseptic Sponges.—The *Vereinsblatt Pfälzischer Aerzte* states that in the antiseptic process sponges of medium porosity are the most easily treated, those in which the pores are too fine being freed with difficulty from sand and shell lime. They are well dried by heat, and are freed from coarse sand by being beaten with canes, being then placed upon a coarse hair-sieve, and washed until the water runs off absolutely clear and free from sediment. The sponges are then subjected to the action of solution of permanganate of potash (1 in 1,000) for about two hours, and enough crude muriatic acid is added to cause the violet color to entirely disappear. By repeated washing with water the sponges are purified still further, until the water used in washing no longer reddens blue litmus paper. They are then well dried and placed in a solution of sublimate (1 in 1,000), where they are left 10 or 12 hours. By occasional washing with distilled water the solution of chloride of mercury is removed, and the sponges are then dried in a room free from dust (or, preferably, in a drying press), until no loss in weight takes place. For preserving the sponges, metal vessels or wide-necked glass receptacles closing tightly are indispensable.—*Lancet.*

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 2,032.—**Solvent for Graphite** (S., Stillwater, Minn.).

"What chemical will dissove lead in a lead pencil?"

There is no lead in a lead pencil. The substance used is called "black lead," but it consists of nearly pure carbon in the form of graphite or plumbago, and is not soluble in any chemical.

No. 2,033.—**Sozodont** (R.).

According to Schaedler, the liquid sozodont is a solution of 5 parts of oil-soap [Castile Soap] in 6 parts of glycerin, 30 parts of alcohol and 20 parts of water, scented with a little of the oils of peppermint, cloves, cinnamon, and staranise, and tinted with cochineal. The powder is said to be carbonate of calcium, magnesia, and powdered orris root.

No. 2,034.—**Broquet's Still and Valyn's Treatise on Distillation** (H.).

Broquet's still for the preparation of essential oils, etc., described and illustrated in our September number, may be obtained of M. Broquet, 121 Rue Oberkampf, Paris, France, at prices ranging from 50 francs upwards, according to size.

Valyn's "Traité . . . de Destillation," etc., mentioned in the same place, may be obtained through any importing book-dealer, for instance, B. Westermann & Co., 838 Broadway, or G. E. Stechert, 828 Broadway.

No. 2,035.—**Almond Cream** (R.).

The following formula may suit you:

Oil of Almonds (expressed)	16 oz.
Spermaceti	1 oz.
White Wax	1 oz.
Oil of Bitter Almond (essential)	5 drops.
Oil Rose	1 drop.
Water	16 oz.

Saturate the Water with the essential oils, then proceed as directed in the U. S. Ph. for Unguentum Aquæ Rosæ.

No. 2,036.—**Yield of Essential Oils** (R.).

It is impossible to answer the query of our correspondent in the space available for such purpose. In order that he may be able to look up the matter himself, we would refer him to works like the following: Flückiger and Hanbury, "Pharmacographia."—Flückiger, "Pharmakognosie des Pflanzenreiches."—Piesse, "The Art of Perfumery."—Husemann and Hilger, "Die Pflanzenstoffe."

By the way, "banana oil" and "pine-apple oil" are artificially prepared compounds, and are not obtained from the fruit at all. Though both fruits have a distinct odor, which is particularly prominent in the case of the banana, the essential oil or other volatile principle upon which it depends has not been isolated.

No. 2,037.—**St. Jacob's Oil** (Toledo).

Some years ago, the composition of this proprietary article was stated to be oil of turpentine (of good quality), mixed with a little oil of rosemary and lavender, and colored with a little alkanet or red saunders. This statement, which was taken from the *Pharm. Centralhalle* (see NEW REMEDIES, 1880, 148) was declared entirely unreliable by the proprietors of the article (*ibid.*, p. 161). According to Dr. Christman (NEW REM., 1882, 252), the ingredients are oil of turpentine, oil of origanum (thyme), oil of rosemary, oil of lavender, and alcohol. Another correspondent (*ibid.*, p. 316) points out that ether must be one of the constituents. According to Thiele, it is oil of turpentine perfumed with oil of thyme (Kratschmer, "Geheimmittel," p. 193). The last-named authority also states that, according to R. E. Squibb (*sic*) it is a weak alcoholic extract of aconite root, containing ether and oil of turpentine and colored red.

No. 2,038.—**Female Druggists** (S. J. D., Manchester, Ohio).

This correspondent asks: 1. "Are there many ladies employed as druggists? 2. Do they, as a class, render as good satisfaction to the trade and employers as gentlemen? 3. Have many been successful and finally gone into business for themselves?"

We have heard of female drug-clerks, but have never seen one, except as students, and in a few isolated instances, and therefore infer that, as a class, they are not sufficiently numerous to warrant comparison. There is no reason why a woman, with proper qualifications, may not succeed as well in this occupation as in any other, but few are likely to engage in the business for some time to come, for the reasons: first, it is not customary, and second, every young woman anticipates marriage and the care of a family, and is not likely to devote several years and considerable money to acquiring knowledge that she may have no subsequent use for. Men choose their vocation with the expectation of continuing in it for life and without regard to marriage. If women did the same, there would be more of them found in business for themselves.

No. 2,039.—**Photoxylin, or Mann's Gun-Cotton** (M.).

We have in a previous issue declared that the article *photoxylin*, so favorably reported on by Russian surgeons as a superior kind of gun-cotton for making surgical collodion, could not be imported by vessels carrying passengers, as it is against the shipping laws. We have, however, ascertained that it is the same article as that for which a formula was given by Mann, of St. Petersburg. We are indebted to Dr. P. Ch. Elmer, of the Scovill Manufacturing Co., 423 Broome street, N. Y., for the following account of it:

Mann, of St. Petersburg, prepared his gun-cotton with sulphuric acid of but moderate strength. He took 31 p. of sulphuric acid of 1.830–1.835 sp. gr., 20 p. nitrate of potash, and immersed the cotton in the mixture when 50° C., digesting it for 24 hours at 28°–31° C. The time of digesting can be extended to 5 or 6 days. When the temperature is kept at 50°, one hour will suffice.

A mixture of 33 p. sulphuric acid of 1.80 sp. gr. and 10 p. of nitrate of potash gave also good results.

Chili saltpetre (nitrate of soda) crystallizes easily in the mixture, and will not do on that account.

No. 2,040.—**Sale of Alcohol** (F. O. R.).

This correspondent, residing in the State of Massachusetts asks, the following question:

"Can alcohol be legally sold to a minor for medicinal, mechanical, or chemical purposes under the Government or State? It is done throughout the State, and I want to know whether it is legal or not."

We can answer this question only partially. So far as the U.S. license is concerned, neither the age, sex, nor other condition of the purchaser is mentioned in the law. The law refers only to the manufacturer and to the seller, either wholesale or retail. The Congressional law cares nothing about the use or disposition of the alcohol when it has legitimately been sold to a consumer who does not propose to sell it again. A State law, however, may go further. Under what is called the police powers of a State, laws may be enacted, regulating the traffic in alcohol, prescribing to whom it may or may not be sold or delivered, etc., etc. Whether there is a law in the State of Massachusetts, prohibiting the sale, or the delivery by a seller, of any alcohol to minors, is a matter you must ascertain from a person versed in your State laws. We could not undertake the responsibility of giving you a reliable opinion or statement on this subject. Only this much is certain: if there is no State law forbidding it, then there is no other law that we know of which prevents it.

No. 2,041.—**Paper Process for Medicated Waters** ("West").

This correspondent wants to know the details of the "paper" process for making medicated waters. We presume he has heard or read of one recently proposed by Rich L. Igel in the *Am. Journ. Pharm.*, which is carried out as follows:

Lay a piece of filtering-paper of suitable size upon a smooth, clean surface (pill-tile, marble-slab, plate of glass, etc.), and drop upon it (well distributed) the requisite number of drops required for the quantity of medicated water to be made. To prepare, say, 2 pints of peppermint water, a No. 33 filter, and 30 minims of the oil are required. Then fold it, and tear it into fragments; introduce them into a suitable bottle, add 1 fluidounce of distilled water, and shake until the contents are reduced to a pulpy mass. Then add several portions, each of 2 or 3 fluidounces, shaking well after each addition, and finally add the remainder of the water in one lot, shake, and throw the whole mass upon a filter. Lastly, pass enough water through the latter to make 2 pints.

In the case of a number of oils, the preceding process may be combined with a feature long practised or recommended by others, namely, to take water at a higher temperature for the first treatment of the oil, and to filter finally, when the liquid has resumed the temperature of the air. Of course, this method may be employed also without the intervention of paper, but the latter promotes the limpid and clear condition of the filtrate. In our judgment, neither the cotton, nor the paper, nor the hot water process is suitable for oils of the Citrus family. The two first-named processes are particularly objectionable, as these oils are thereby exposed in very thin layer to the air, which causes their partial oxidation, whereby they acquire a terebinthinate taste.

No. 2,042.—**Maclagan's Test for Cocaine** (Washington).

This was originally published by us in this journal; see our February number, page 22. It is the best practical test, so far known, to prove the presence, in any sample of cocaine, of any notable proportion of the amorphous alkaloid. It is as follows:

Dissolve about 1 grain of the hydrochlorate of cocaine

in about 2 fluidounces of water, then add 1 or 2 drops of water of ammonia, and rub the sides and bottom of the containing vessel (beaker, etc.) with a glass rod. If amorphous cocaine is absent, well-marked striæ will appear where the rod has touched the glass, and, shortly after, flocks of a precipitate will form and slowly subside, leaving the liquid clear and bright as at first. If any notable quantity of amorphous cocaine is present, neither striæ nor precipitate will form, and the solution will remain milky for a long time, the surface having a more or less oily appearance. If the quantity is very small, it may not entirely interfere with the formation of a precipitate, but the latter is, at all events, less distinctly crystalline than in the case of the pure alkaloid.

The test, of course, depends upon the fact that ammonia isolates the alkaloid from the salt, and the pure alkaloid, under the given circumstances, has a great tendency to crystallize, which is started and promoted by the jarring or vibration caused by a stirring rod, in the same manner as bitartrate of potassium, triple phosphate, etc., etc., may be made to crystallize from a solution. The amorphous alkaloid not possessing this property, it remains suspended in the liquid, causing this to retain a milky appearance for a long time.

No. 2,043.—**Light or Bulky Iodoform** (U. S. A.).

For some time past there has been a growing demand for light or bulky iodoform for surgical practice. In former years, the small, heavy, compact crystals were preferred, but when powdered iodoform came into more extended use, it gradually became evident that much of it was wasted, or, at all events, that economy should be practised in its use, as it is an expensive article. In large public hospitals, the consumption of iodoform for dressings is extremely large, there having been periods during the current year when the quantity consumed at *one* of the large hospitals belonging to the city, in *one* week, amounted to 15 pounds. Now, it makes a great difference financially whether the iodoform is in form of small, heavy crystals (or a powder prepared therefrom and occupying but a small space), or in form of a light, bulky powder. Supposing a burn or a large, open wound is to be freely sprinkled with iodoform. By actual experiment it has been found that two pounds of the bulky kind will generally go as far, that is, cover the same amount of surface, as three pounds of the heavy. There is always more or less waste in such dressings. The more this waste can be restricted, without interfering with the efficiency of the remedy, the better it will be for the finances of the institution. A saving, where it can be made in one direction, will permit an expenditure in another direction, when it might otherwise have been impossible.

It is of great importance to the practising physician to know how far he may go in the expense of the medicines he prescribes for a patient of limited means, or how he may make a given amount of an expensive drug last as long as possible. While due economy should be practised at all times, yet in many cases particular care must be taken not to overtax the resources of a family with expensive medicines. We know of several cases where the disregard of this principle so crippled the patient and his family that the services of the medical attendant were dispensed with, in spite of his acknowledged skill. If, therefore, iodoform is to be used, and economy is one of the factors necessarily to be taken into consideration, then not only the light and bulky kind should be procured—and this may be had from most of the wholesale dealers or manufacturers—but other means should also be employed to reduce its cost, if it can be done without injury. One of the most serviceable methods is to use a mixture of equal parts of iodoform and naphthalin powdered together. In most cases, this mixture answers the same purposes as the pure iodoform, and when the latter costs $4.50 per pound, the above mixture will cost only about $2.30, which is an important saving.

No. 2,044.—**Quillaia or Quillaja** (Washington).

The question has been put to us why we appear to prefer the spelling *Quillaja* to that of *Quillaia*, the latter having been recognized by the last U. S. Pharm. Our apparent preference for the former spelling is surmised from the fact that in the printed draft of the selections from the National Formulary (see October number, p. 194; and also the original report) we have adopted this spelling. We will briefly state the reasons why we have done so.

The old Chilian name of the soap-bark tree is *quillai* or *quillay* ("bark"), either spelling being followed by different writers. Molina was the first who assigned the tree its place in the system and he gave it the name *Quillaja*. At least, we infer that Molina (whose work is at present not at our command) himself used this spelling, since Bentham and Hooker (in *Genera Plantarum*, I., 614) adopt this and quote immediately behind it "*Molina) Chili II.*, 298." The same is done by Baillon in his *Histoire des Plantes*, vol. I., 394, foot-note: "*Quillaja* Mol., Chil., ed. 2, 298." Also on page 471. Karsten, in his *Deutsche Flora*, p. 779 (which comprises foreign countries likewise) also spells *Quillaja* Molina. The same is done by Pfeiffer in his *Nomenclator botanicus*, II., 903: "*Quillaja* Molina, 1782." De Candolle in his *Prodromus*, II., 547 (and apparently also Jussieu, Gen. 444, though we cannot consult this author at present) also uses this spelling. Again, this is adopted by such authorities as Guibourt, Merat, and De Lens, Luerssen, Flückiger ("Pharmakognosie des Pflanzenreiches," second ed., p. 455), in Just's "Botanische Jahresberichte," (wherever it occurs; for instance, 1879, II, 91, 451, 697, etc.); and by many other writers and authorities.

So much for a justification of the spelling *Quillaja*, based upon precedents.

This spelling is also much more natural, philologically. *Quillai*, the old Chilian name, is tri-syllabic, that is, the *a* and *i* are not pronounced as a single sound, but separately. In latinizing a word of this kind, the most natural proceeding is to permit the vowel *i* to pass into the semi-vowel *j*, which in some languages is also represented by *y*.

[Properly speaking, *y* is the natural semi-vowel, corresponding to *i*, as will be familiar to all those who have a knowledge of comparative philology. In Latin, however, the letter *j* takes the place of *y* in all but foreign words].

And it is the Latin term alone that concerns us here. Had the task originally been to construct a modern *English* word from the native *quillai* by attaching the suffix *a*, the most natural way, considering the habit of the language, would have been *quillaya* (*quil-la-ya*); and this is precisely as the Latin word *quillaja* should be pronounced.

No. 2,045.—**Artificial Fruit Essences** (Several subscribers).

On page 146 of NEW REMEDIES for 1880, we gave a synoptical table of the composition of a large number of fruit essences. Various authorities, however, give different ingredients as well as proportions for some of these compounds.

Artificial Fruit Essences.	Amyl Alcohol.	Aldehyde.	Amyl Acetate.	Amyl Butyrate.	Amyl Valerianate.	Chloroform.	Ethyl Acetate.	Ethyl Benzoate.	Ethyl Butyrate.	Ethyl Formate.	Ethyl Nitrate.	Ethyl Œnanthate.	Ethyl Valerianate.	Glycerin.	Oil Lemon.	Oil Orange.	Oil Wintergreen.	Persico Essence.	Alc. Sol. Benzoic Acid.	Alc. Sol. Oxalic Acid.	Alc. Sol. Succinic Acid.	Alc. Sol. Tartaric Acid.
Apple	20	20	10	10	100	10	10							40								
Apricot														40								
Banana				100										20								
Black Cherry																						
Cherry																						
Gooseberry																						
Grape		10	10				100	50				100		30								
Lemon		10	20			20	50	50						30	100							
Melon		10	30				100		50					30								
Orange		20	10				50							30		100						
Peach		30	100			30	50							30								
Pear		30	100				50		50					30								
Pineapple		30	100				50							30								
Plum		30	100				50							30								
Raspberry		30	100				50							30								
Strawberry		30	100				50							30								

In each of these cases, the several figures indicate the number of parts by *measure* which are to be added to 1000 parts by *measure* of 90-per-cent alcohol. The last 4 columns give the proportion of alcoholic solution of 4 organic acids. These solutions are to be prepared by dissolving the respective acids in cold alcohol (90%) to saturation.

Fruit essences made their first appearance on the market about the year 1851; when a number of "oils," respectively labelled "pear-oil," "apple-oil," "banana-oil," etc., were exhibited at the World's Exhibition in London. Prof. A. W. Hofmann examined these, and ascertained that they were solutions of ethers of ethyl and amyl in alcohol.

The above proportions are given on the authority of Kletzinsky, in *Dingler's Polyt. Journal*, 180, 77.

No. 2,046.—**Precipitate in Tincture of Iron** (C. F. D.)

This subscriber writes:

"Some time ago I prepared *Liquor Ferri Chloridi*, U. S. Ph. 1880, and a few days after preparing the tincture from this liquor, I found a dense precipitate in both the liquor and the tincture. I added a small quantity of hydrochloric acid to the liquor which dissolved the precipitate. What was the cause? Yesterday I had a prescription to dispense containing:

Quininæ Sulphat	℥ ss.
Tinct. Ferri Mur	℥ ij.
Glycerini	℥ ss.
Aquæ	q. s. ad ℥ ij.

"The quinine was dissolved in the tincture and water, and the

glycerin added. To-day the mixture had acquired a light-brown color and contained a precipitate. What explanation can be given for this?"

The explanation is undoubtedly this, that when the solution of chloride of iron was prepared, an insufficiency of nitric or hydrochloric acid was used, whereby the formation of an oxychloride was brought about. Possibly our correspondent employed acids which were considerably below the strength of those which the formula of the U. S. Ph. intends to be used. If so, he should have used a proportionate quantity more. Again, it is just possible that he omitted to add the second portion of hydrochloric acid (see U. S. Ph., p. 197, line 4). We have had considerable experience in superintending the process as carried on by others, chiefly those whom we have ourselves instructed, and we have found it a curious fact that the most common error committed by those who are not well practised is the omission of the second portion of hydrochloric acid, if they attempt to execute the process from memory. When the error has once been pointed out to the person in question, he is not likely to commit it again. The U. S. Ph. furnishes a test by which the presence of oxychloride may be demonstrated. Namely, on diluting 3 parts of that solution with distilled water to 100 parts, and boiling in a test-tube, the liquid should remain clear.

The formation of an oxychloride is generally due to the fact that there is not enough hydrochloric acid present to combine with all the ferric radical produced from the ferrous previously present. An insufficiency of nitric acid may, however, also have a share in the reaction, as the ferrous chloride remaining unoxidized will gradually be oxiddize by contact with the air, and the same deficiency of hydrochloric acid is then the cause of trouble. The oxychloride may be regarded as a compound of ferric oxide Fe_2O_3, and ferric chloride Fe_2Cl_6, in such a way that the solution of the latter salt holds the former in solution until there is a molecular disturbance. Dialyzed iron may be regarded as a combination of this kind, for instance, but in this case the proportion of oxide of iron held in solution is quite small. When a solution or tincture of iron containing oxychloride is exposed to air, or much shaken, or mixed with other liquids, it usually deposits the dissolved ferric oxide quite promptly. And this becomes after a while quite difficultly soluble.

The remedy, therefore, is to prepare the original solution with acid of full strength, or with a larger proportion of acids, if they are weaker.

No. 2,047.—**Hydroxylamine Hydrochlorate** (Photo.).

A brief notice of the substance, so far as its photographic use is concerned, will be found in the Report on Commercial Drugs, etc., on page 209 of this number.

Regarding its nature, it may be regarded as a compound of NH_3 with hydroxyl OH. Its real nature or molecular constitution has not been fully made out, as it has never yet been obtained in a free state, but only in combination with acids. Lossen was the first who observed and studied it.

The preparation of a perfectly pure salt of hydroxylamine is rather an expensive operation. For commercial purposes it will probably be sufficient to obtain a product —preferably the hydrochlorate—which shall contain about 90 per cent of the pure salt. This may be obtained in the following manner:

Nitric acid, of spec. grav. 1.400, is boiled for some time with nitrate of urea, 15 Gm. for every liter of the former, the object being to remove any nitrous acid that might be present. 400 Gm. of the purified nitric acid, when cooled off, are mixed with 300 Gm. of absolute alcohol and 300 Gm. of nitrate of urea, and then subjected to distillation from a tubulated retort. When about one-half to two-thirds have passed over, a stoppered funnel is fitted in the tubulure of the retort, and a freshly prepared mixture of 400 Gm. of nitric acid and 300 Gm. alcohol gradually allowed to drop into the retort, in proportion as its contents distil over. The resulting nitrate of ethyl is then washed with water, and is now ready for being reduced to hydroxylamine.

For this purpose, several large flasks are charged each with 120 Gm. of this ether, 400 Gm. of granulated tin, and 800 to 1,000 C.c. of hydrochloric acid of spec. gr. 1.190, and 3 times the volume of water. Reaction soon begins of its own accord, and may be promoted by repeated agitation, without the application of heat. The contents of all the flasks are then poured together, diluted with at least an equal volume of water, the tin removed by hydrosulphuric acid, the sulphide of tin filtered off, and the filtrate evaporated to a syrupy condition. The liquid now contains hydrochlorate of hydroxylamine, chloride of ammonium, some chloride of iron (derived from the tin, which usually contains this metal, and possibly some others), a little chloride of calcium, etc. (from the vessels), and hydrochloric acid. The syrupy liquid is *well cooled* and then supersaturated with soda, which causes the precipitation of all heavy metals, calcium, etc. These having been removed by filtration, the filtrate is cautiously acidulated with hydrochloric acid and concentrated, when it will finally leave behind a mixture of chloride of sodium, chloride of ammonium, and hydrochlorate of hydroxylamine. This is extracted with hot alcohol, which leaves behind all the chloride of sodium and most of the chloride of ammonium. The hot alcohol solution finally furnishes crystals of hydrochlorate of hydroxylamine containing about 90 per cent of the pure salt, the balance being chloride of ammonium. The latter may be removed by means of platinic chloride, which forms a double salt with ammonium, but not with hydroxylamine salts. But, as stated above, this is an unnecessary refinement when the substance is to be used for technical purposes only.

The reaction between nitrate of ethyl and the reducing agent hydrogen (derived from the action of hydrochloric acid upon the tin) may be expressed thus:

$C_2H_5NO_3$	+	$3H_2$	=	NH_2OH	+	C_2H_5OH	+	H_2O
nitrate ethyl		hydrogen		hydroxylamine		alcohol		water

No. 2,048.—**Hypophosphorous Acid** (E. A.).

Some years ago, we published a note on this subject in answer to a query (see NEW REM., 1883, page 281). We pointed out that the commercial so-called 50% acid was a very impure article, as it contained a good deal of calcium, as well as oxalic or sulphuric acids. We there gave a method by which a pure acid may be prepared, namely, by decomposing hypophosphite of calcium with sulphuric acid in the presence of water, and enough alcohol to precipitate all of the calcium sulphate. Our formula furnished a weak acid as the first product, which was afterwards directed to be concentrated at a temperature not exceeding 160° F. Since the formula directs the *whole* of the generated hypophosphorous acid to be recovered, by washing the precipitate, etc., and the washings materially increase the volume of liquid, necessitating a larger quantity of alcohol to precipitate the sulphate of calcium, we have since then modified the process so as to do away with this drawback.

We now use such quantities of hypophosphite, water, acid, and alcohol, that the liquid resulting from the reaction, and still mixed with the insoluble precipitate, contains the desired percentage of the acid. On standing, the precipitate will collect at the bottom, and the liquid may be poured off almost completely. If the acid is required immediately, and the presence of alcohol is not objectionable, it may be used at once. What remains within the pores of the precipitate is simply thrown away. The liquid which is separated is weighed, then subjected to a moderate heat until the alcohol is evaporated, and the original weight restored by distilled water.

When a 10% acid, or a still stronger acid is wanted, we have found that it is not advantageous to start from the hypophosphite of calcium. In the first place, this salt requires over 6 parts of water for solution; hence, to prepare a concentrated hypophosphorous acid from it, it would be necessary to decompose it with sulphuric or oxalic acids in the presence of less water than would be sufficient to dissolve the salt. In fact, considerably more than one-half of the salt would be present as powder when the sulphuric or oxalic acids come in contact with it. As each fragment of salt becomes instantly surrounded with an insoluble layer of sulphate or oxalate of calcium, there is a possibility that the whole of the hypophosphite may not be decomposed, though this will probably happen only under rare circumstances.

The standard process for making pure hypophosphorous acid, adopted by those who have studied this body, has, of course, been to decompose hypophosphite of barium with sulphuric acid. But this salt is not generally available, and being used only for scientific purposes, is comparatively expensive.

We have, however, at our command hypophosphite of potassium, and this may be decomposed by tartaric acid in the presence of alcohol. This process we find to be the most serviceable, and to yield an unexceptionable product, containing only traces of bitartrate of potassium. The details are as follows:

Acidum Hypophosphorosum Dilutum.

Diluted Hypophosphorous Acid (10%).

Hypophosphite of Potassium	208 parts.
Tartaric Acid, in powder	300 "
Distilled Water	588 "
Diluted Alcohol	600 "

Dissolve the Hypophosphite of Potassium in the Distilled Water, and the Tartaric Acid in the Diluted Alcohol. Mix the two solutions in a flask, cork the latter well, and set it aside in a cold place for twelve hours, occasionally agitating the contents. Then carefully decant the liquid into a funnel, the neck of which has been stopped with a pellet of absorbent cotton. Weigh the filtrate, which contains 10 per cent of hypophosphorous acid, in a tared capsule, and evaporate the alcohol by means of a water-bath, or by exposure in a drying oven, at a temperature not exceeding 60° C. (140° F.). Then allow the liquid to cool, and add enough Distilled Water to restore the original weight of the filtrate. Preserve the product in well-stoppered bottles.

A 10-per-cent hypophosphorous acid thus prepared has a specific gravity of about 1.061 at 15° C. (59° F.).

The filtrate, if desired, may be evaporated so as to furnish a 50% acid, or even a still more concentrated acid.

The stronger the acid is, the more care must be taken during the heating. Organic matter or any oxidizing agents must be carefully kept from contact with it. If it is overheated, in free contact with air, it is apt to split into phosphoretted hydrogen (which may take fire) and phosphoric acid. Even at a moderate heat, when hypophosphorous acid is evaporated to a syrupy condition, in contact with air, it is slowly oxidized to phosphorous acid, which may be at once recognized by its peculiar odor.

This decomposition of hypophosphorous acid may be prevented by avoiding contact with air. For instance, the filtrate obtained by the above-described process may be deprived of alcohol by distillation in a flask, and when the alcohol has been driven over, the residuary liquid may be further concentrated by distillation, in which case it is advisable to fit the condenser tightly to the receiver, and to connect the latter with an aspirator or filter-pump, in order to cause the liquid to boil under diminished pressure.

No. 2,049.—**Oleate of Manganese; Oleate of Zinc** ("Laboratory").

Our correspondent asks how the hardening of metallic oleates may be prevented. He finds that, on keeping, these oleates are apt to become brittle and also often acquire a deeper tint, especially near the edges. He also wants us to give proportions for preparing them, and a working formula.

So far as we know, there is no other way to prevent the hardening, except to put up the oleates, shortly after being prepared, in air-tight vessels. If the preparations are required to fill prescriptions, or for use by known customers, it might be possible to advise the addition of a little petrolatum, which is an effective preventive of the "drying-up." We are in the habit of preparing, for physicians' use, oleates containing 25 and 50 per cent of petrolatum. These are unctuous compounds of great smoothness and homogeneousness.

As to working formulæ, we can advise nothing better than the plan recommended by Parsons, to start with Castile soap as the most available form of commercial oleate of sodium, and sulphate of zinc and sulphate of manganese may be used for the respective metals.

The reactions in either case are:

1. $MnSO_4.4H_2O$ + $2NaC_{18}H_{33}O_2$ = $Mn(C_{18}H_{33}O_2)_2$ +
manganese sulphate 223 — sodium oleate 608 — manganese oleate 616
+ Na_2SO_4 + $4H_2O$
sodium sulphate 142 — water 72

and

2. $ZnSO_4.7H_2O$ + $2NaC_{18}H_{33}O_2$ = $Zn(C_{18}H_{33}O_2)_2$ +
zinc sulphate 286.9 — sodium oleate 608 — zinc oleate 626.9
+ Na_2SO_4 + $7H_2O$
sodium sulphate 142 — water 126

Of course, the figures express the molecular weights, or the proportions in parts by weight.

Now, Castile soap is not pure oleate of sodium, but it is not far from it. Besides, when fresh, it contains considerable water. Hence, either the whole Castile soap to be employed should be dried, or a good average sample should be taken, the quantity of water estimated in it (by drying to a constant weight) and allowance be made, in the calculation, for the water present.

To prepare 1 pound, each, of oleate of manganese and of oleate of zinc, would require theoretically (that is, if the oleate of sodium were pure), in the one case

2,523 grains of crystallized sulphate of manganese
and 6,907 grains of oleate of sodium, and in the other case
3,204 grains of crystallized sulphate of zinc
and 6,788 grains of oleate of sodium.

As the Castile soap is not quite pure, and a small excess can do no harm, as it is washed out again, the following proportions will answer in practice.

1. 5 parts sulph. manganese.
13 " Castile soap.
2. 10 " sulph. zinc.
22 " Castile soap.

In either case, the substances are dissolved to a *dilute* solution, the Castle soap in warm water. Then pour the soap solution into the other, warm until the oleate separates, then wash with warm, lastly with cold water, express moisture, and put in proper vessels.

Compound Licorice Powder, according to Mr. Leo Eliel, is improved in flavor and appearance by using Russian peeled licorice instead of the ordinary powder.

FRENCH papers announce that the Government of Uruguay have prohibited from Sept. 11th the importation of alimentary and pharmaceutical preparations containing salicylic acid.

"THE Brisbane correspondent of the *Chemist and Druggist of Australia* names the travellers of two English drug houses who had been visiting Queensland, both of whom, he says, 'carried samples of American printing matter.' How is this? Labor and machinery cost 33 per cent more in America than in England, and paper is 20 to 25 per cent dearer there. And yet English firms find it advantageous to sell American labels to Australian buyers!"—*Chemist and Druggist.*

Perhaps the American labels are enough better to be worth the difference.—ED. AM. DR.

BIBLIOGRAPHY.

AMERICAN MEDICINAL PLANTS. An illustrated and Descriptive Guide to the American Plants used as Homœopathic Remedies; their History, Preparation, Chemistry, and Physiological Effects. By CHARLES F. MILLSPAUGH, M.D. Illustrated by the Author. Boericke Tafel, New York and Philadelphia.

PART VI., Containing Nos. 26 to 30, completes this work. Altogether there are 180 plates which, with the text, will make two large volumes. An appendix of 65 pages contains an elaborate glossary, a list of the authorities consulted, a bibliographical index to the references in the text, and an index to the subject matter.

We have before expressed our admiration of the work and our appreciation of its value to pharmacists of this country, and we congratulate both the author and the publishers upon having produced a work which is creditable to themselves and to the scientific literature of this country.

A MANUAL OF THE PHYSICAL DIAGNOSIS OF THORACIC DISEASES. By E. DARWIN HUDSON, JR., A.M., M.D., Professor of General Medicine and Diseases of the Chest in the New York Polyclinic, etc. New York: William Wood & Co., 1887, pp. 150, 8vo.

THE author of this work had for several years been actively engaged in teaching graduated physicians, and was familiar with their especial requirements in the way of instruction in diagnosis of chest diseases. The information given by the work is largely arranged in tabular form, so that comparison is facilitated—a matter of importance when it becomes desirable to aid the memory. Advantage is taken of numerous diagrammatic and other forms of illustration to make the text more comprehensible.

A LABORATORY MANUAL OF CHEMISTRY, Medical and Pharmaceutical, by OSCAR OLDBERG, PHARM.D., Professor of Pharmacy and Director of the Pharm. Labor., and JOHN H. LONG, SC.D., Professor of Chemistry and Director of the Chem. Labor., Illinois College of Pharmacy, Northwestern University. (Illust.) 8vo. Chicago, 1887, pp. 435.

THIS work proceeds upon a plan which combines various meritorious features possessed by other treatises. It is specially designed as a companion in laboratory work, beginning with concise and practical chapters on the properties and analytical relations of the elements and their principal compounds, and, in connection therewith, giving instructions in chemical manipulations, following this up with a section on "Synthetical Chemistry," in which the preparation, chemistry, assay, and tests of all the official and many non-official chemicals is treated of. Next follows a section on "Analytical Chemistry," comprising a course in inorganic qualitative and in organic analysis of officinal substances.

The concluding chapter treats of Urinary Analysis, which is supplemented by 5 plates containing illustrations of normal and abnormal constituents of urine.

The work has evidently been prepared with much care, and shows the familiarity of the authors with the difficulties under which beginners in laboratory work are apt to labor, for many of these difficulties are removed by explanatory remarks and chemical equations. The book will be found useful, not only as a text-book under a teacher, but also for self-study.

PHARMACEUTICAL PROBLEMS and EXERCISES IN METROLOGY, CHEMISTRY, PHARMACY, AND PHARMACEUTICAL NOMENCLATURE. By OSCAR OLDBERG, PHARM.D., Professor of Pharmacy in the Illinois College of Pharmacy, Northwestern University. 8vo. Chicago, 1887.

THIS is an excellent little book and will be of great service to students, if they will carefully work out the answers and the solutions of the problems. The selection of questions is very judicious and covers the ground very effectively, so far as the curriculum of a school of pharmacy extends.

PLANT CHEMISTRY as illustrated in the Production of Sugar from Sorghum. By HELEN C. DE S. ABBOTT (Reprinted from the Proceedings of the Alumni Association of the Philadelphia College of Pharmacy), pp. 14, 8vo.

PLANT ANALYSIS as an Applied Science. By HELEN C. DE S. ABBOTT (Reprinted from the Journal of the Franklin Institute), pp. 35, 8vo.